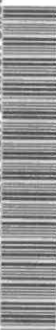


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## **Drinking Water Surveillance Program**

# **PORT DOVER/ DOAN'S HOLLOW WATER TREATMENT PLANT**

**Annual Report 1987**

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MOE**



**Environment  
Ontario**

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PORT DOVER / DOAN'S HOLLOW  
WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE  
PROGRAM

ANNUAL REPORT 1987

ONTARIO MINISTRY OF ENVIRONMENT  
OCTOBER 1988

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### ACKNOWLEDGEMENTS

The Drinking Water Surveillance Program (DWSP) employs a team approach requiring the co-operative effort of the Ministry of the Environment (MOE) staff from Water Resources and Laboratory Services Branch and the Regions, as well as plant operational staff from the Municipalities.

This annual report was produced by the DWSP Group (Ron Hunsinger, Peter Bohm, Carol Sackville-Duyvelshoff, Chris Fung and John McGrachan) and by Pat Lachmaniuk (on developmental assignment to the Drinking Water Section).

Helpful input and reviews were received from Drinking Water Section Staff, in addition to reviews by other MOE and municipal personnel.

## EXECUTIVE SUMMARY

### DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER WATER TREATMENT PLANT 1987 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 44 plants are being monitored.

The Port Dover Water Treatment Plant is a conventional treatment plant which treats water from Lake Erie. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. The Port Dover plant has a design capacity of 11.4 X 1000 M3/day. The Doan's Hollow Infiltration Pond is used as an additional source and once chlorinated makes up approximately 20 to 30 percent of the water supplied to Port Dover. Both sources supply a population of approximately 4,682 people.

Water samples from the plant, raw and treated, Doan's Hollow, raw and treated and two distribution system sites were taken on a monthly basis. The Port Dover Water Treatment Plant was sampled for 160 parameters 9 times during 1987. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organic (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Chlorophenols and Specific Pesticides were analysed for in June and November only.

A summary of results is shown in Table 1.

Three treated waters from Doan's Hollow were positive for Total Coliform, Fecal Coliform and E. coli. Two other water samples had Coliform. The District Officer was notified on all five occasions. Due to its sampling frequency of once per month, the DWSP is not designed to evaluate all aspects of the bacteriological quality of water; however routine bacteriological monitoring as recommended in the Ontario Drinking Water Objectives (ODWOs) is carried out by the operating authority.

Inorganic and Physical parameters were below any applicable health related ODWOs.

Of a total of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

Many of the substances analysed for were naturally-occurring or treatment by-products.

During 1987 the DWSP sampling results indicated that the Port Dover Water Treatment Plant produced good quality water at the plant and this quality was maintained throughout the distribution system.

## SOMMAIRE

### PROGRAMME DE SURVEILLANCE DE L'EAU POTABLE

#### STATION D'ÉPURATION DE L'EAU DE PORT DOVER RAPPORT ANNUEL 1987

Le Programme de surveillance de l'eau potable (PSEP) de l'Ontario fournit des informations immédiates, fiables et à jour sur la qualité de l'eau potable. Le PSEP a débuté officiellement en avril 1986. Il est destiné à englober tous les réseaux municipaux d'alimentation en eau de l'Ontario. Actuellement, 44 stations en font partie.

La station d'épuration de Port Dover est une station classique qui traite l'eau du lac Érié. Le traitement comporte la coagulation, la floculation, la décantation, la filtration et la désinfection. La station a une capacité nominale de 11,4 x 1 000 m<sup>3</sup>/jour. Le bassin d'infiltration de Doan's Hollow est utilisé comme source supplémentaire; après chloration, il fournit de 20 à 30 % de son eau à Port Dover. Les deux sources réunies desservent une population d'environ 4 682 habitants.

Des prélèvements d'eau brute et d'eau traitée de la station et de Doan's Hollow ainsi qu'en deux points du réseau de distribution ont été effectués chaque mois. Neuf fois en 1987, ces prélèvements ont été analysés par rapport à 160 paramètres dans les catégories suivantes : bactériologique, inorganique et physique (analyses en laboratoire et sur place, présence de métaux) et organique (composés aromatiques chlorés, chlorophénols, pesticides et BPC, dérivés phénoliques, hydrocarbures aromatiques polynucléaires, pesticides particuliers et composés volatils). Les chlorophénols et les pesticides particuliers n'ont été analysés qu'en juin et en novembre.

Le tableau 1 résume les résultats obtenus.

Trois spécimens d'eau traitée du Doan's Hollow étaient positifs pour les coliformes totaux, les coliformes fécaux et E. coli. Deux autres spécimens renfermaient des coliformes. L'agent de district a été avisé les cinq fois. En raison de la fréquence des prélèvements (un par mois), le PSEP ne permet pas d'évaluer tous les aspects de la qualité bactériologique de l'eau. Cependant, comme on le recommande dans le cadre des objectifs relatifs à la qualité de l'eau potable en Ontario, un contrôle bactériologique est effectué par l'exploitant.

Les mesures des paramètres inorganiques et physiques étaient inférieures aux limites applicables fixées par l'Ontario pour l'eau potable.

Pour environ 110 paramètres organiques mesurés chaque mois, aucun résultat n'a dépassé les limites acceptables fixées pour la santé.

Un grand nombre de substances détectées apparaissent naturellement ou sont des produits dérivés de l'épuration.

Les résultats des analyses effectuées en 1987 dans le cadre du PSEP ont indiqué que la station d'épuration de Port Dover donnait une eau de bonne qualité et que cette qualité se maintenait dans tout le réseau de distribution.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM      PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE BY SCAN (1987)

SCAN	RAW			TREATED			SITE 1			SITE 2		
	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	30	23	76	36	10	27	41	8	19	24	6	25
CHEMISTRY (FLD)	34	34	100	59	59	100	111	111	100	80	80	100
CHEMISTRY (LAB)	190	154	81	190	131	68	329	270	82	231	192	83
METALS	199	100	50	200	85	42	374	217	58	273	145	53
CHLOROAROMATICS	130	0	0	117	0	0	104	0	0	91	1	1
CHLOROPHENOLS	12	0	0	12	0	0	.	.	.	.	.	.
PAH	68	0	0	34	0	0	.	.	.	.	.	.
PESTICIDES & PCB	250	0	0	226	0	0	204	0	0	175	0	0
PHENOLICS	8	1	12	9	0	0	.	.	.	.	.	.
SPECIFIC PESTICIDES	132	0	0	126	0	0	81	0	0	63	0	0
VOLATILES	279	17	6	279	52	18	278	48	17	194	33	17
TOTAL	1332	329		1288	337		1522	654		1131	457	

NO HEALTH RELATED GUIDELINES/LIMITS WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE

A '.' INDICATES THAT NO SAMPLE WAS TAKEN

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE BY SCAN (1987)

SCAN	RAW			TREATED		
	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	26	26	100	49	32	65
CHEMISTRY (FLD)	23	23	100	46	46	100
CHEMISTRY (LAB)	150	126	84	151	115	76
METALS	140	63	45	160	86	53
CHLOROAROMATICS	78	0	0	91	0	0
CHLOROPHENOLS	12	0	0	6	0	0
PAH	51	0	0	68	0	0
PESTICIDES & PCB	155	0	0	178	0	0
PHENOLICS	6	2	33	6	0	0
SPECIFIC PESTICIDES	105	0	0	99	0	0
VOLATILES	195	0	0	223	33	14
TOTAL	941	240		1077	312	

COLIFORMS WERE PRESENT IN FIVE TREATED WATER SAMPLES. NO OTHER HEALTH RELATED GUIDELINES/LIMITS WERE EXCEEDED

POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE  
 A '0' INDICATES THAT NO SAMPLE WAS TAKEN

## DRINKING WATER SURVEILLANCE PROGRAM

### PORT DOVER WATER TREATMENT PLANT 1987 ANNUAL REPORT

#### INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 44 plants are being monitored. Appendix A contains a detailed description of the DWSP.

The DWSP was initiated at the Port Dover Water Treatment Plant in the spring of 1987.

This report contains information and results for 1987.

#### PLANT DESCRIPTION

The Port Dover Water Treatment Plant is a conventional treatment plant with upflow clarifiers which treats water from Lake Erie. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. In addition to the treatment plant water is also supplied from the Doan's Hollow Infiltration pond. Water from here receives only chlorination prior to distribution. This source supplies approximately 20 to 30 percent of the total

amount of treated water supplied to Port Dover. The Port Dover plant in conjunction with Doan's Hollow serves a population of approximately 4,700 people. The treatment plant has a design capacity of  $11.4 \times 1000\text{m}^3/\text{day}$  and daily flows ranging from  $1.3 \times 1000\text{m}^3/\text{day}$  to  $7.5 \times 1000\text{m}^3/\text{day}$ . The Doan's Hollow Infiltration pond has daily flows ranging from  $0.3 \times 1000\text{m}^3/\text{day}$  to  $1.3 \times 1000\text{m}^3/\text{day}$ .

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

#### METHODS

Water samples were obtained from six DWSP approved locations;

a) Water Treatment Plant

- i) Raw - The water originated from the lowlift discharge line prior to chlorination and was sampled through a stainless steel sample line. The sample tap is located in the bathroom sink.
- ii) Treated - The water originated from the highlift discharge after addition of all treatment chemicals and was sampled through a stainless steel sample line. The sample tap is located by the highlift pumps.



b) Doan's Hollow Infiltration Pond

- i) Raw                - The water originated from the infiltration pond and was sampled through a stainless steel sample line. The sample tap is located in the pump house at the dam.
- ii) Treated        - The water originated from the highlift pump discharge and was sampled through a stainless steel sample line. The sample tap is located in the pump house at the dam.

c) Distribution System

- i) Site 1           - This site is closest to the plant, the exact location is not available.
- ii) Site 2          - This site is farthest from the plant, the exact location is not available.

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

SITE LOCATION MAP

LOCATION: PORT DOVER WATER TREATMENT PLANT



FIGURE 2  
PORT DOVER WATER TREATMENT PLANT

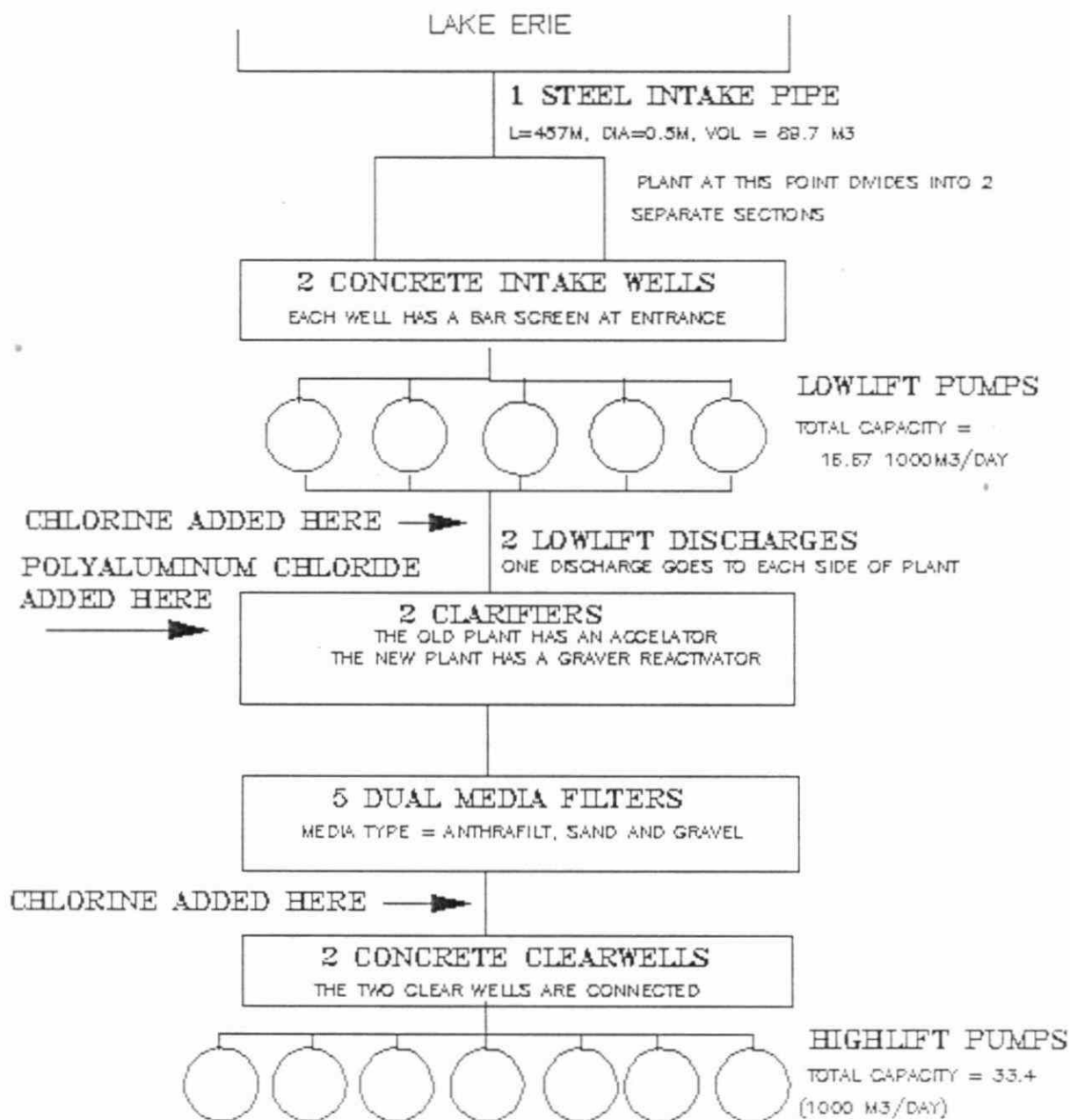


TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

PORT DOVER WATER TREATMENT PLANT

<u>LOCATION:</u>	316 NELSON STREET PORT DOVER, ONTARIO NOA 1N0 (519-583-1930)
<u>SOURCE:</u>	RAW WATER SOURCE - LAKE ERIE
<u>RATED CAPACITY:</u>	11.4 (1000 M3/DAY)
<u>OPERATION:</u>	MUNICIPAL
<u>PLANT SUPERINTENDENT:</u>	W. WIGHT
<u>MINISTRY REGION:</u>	WEST CENTRAL
<u>DISTRICT OFFICER:</u>	MR. P. ROSTERN

<u>MUNICIPALITY SERVED</u>	<u>POPULATION</u>
PORT DOVER	4,682

At all distribution system locations two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing, due to leaching from (or deposition on), the plumbing system. The only analysis carried out on these samples therefore, are General Chemistry and Metals. The free flow sample represented fresh water from the distribution main that had been flowing for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to eliminate any variance (Appendix B).

Sample day flow, treatment chemical dosages and field measurements such as Turbidity, Chlorine Residuals, pH and

Temperature were recorded on the day of sampling and were entered onto the DWSP data base as submitted.

## RESULTS

The Port Dover Treatment Plant and two distribution system locations were sampled for approximately 160 parameters on a monthly basis starting in March. The Doan's Hollow Infiltration Pond was sampled only in those months that it was in operation.

The Specific Pesticides and Chlorophenols scans were sampled for in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics are only analysed for in the raw and treated water at the plant.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed for by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit

that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 presents parameters not detected.

Associated guidelines and detection limits are also supplied on both tables. Parameters are listed alphabetically within each scan.

## DISCUSSION

### General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWO's) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS) recently initiated by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

As stated under Results, traces do not indicate quantifiable results as defined by established MOE laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that

is repeatedly detected at these levels, the occasional finding of a trace level of a contaminant is not considered to be significant. DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.

#### Bacteriology

Positive results for the Bacteriology scan were present ten times in the treated plant water, thirty-two times in the Doan's Hollow treated water, eight times in the distribution system Site 1 water and six times in the Site 2 water. For the treated plant water and distribution system water, the positive parameters were Standard Plate Count, Total Coliform and/or Total Coliform Background.

The treated water from Doan's Hollow on three occasions contained Total Coliform above the ODWO of 5 organism/100 mL, by the membrane filtration procedure. On five occasions Coliforms, as determined by the presence/absence test, were detected in the treated water, on three of the five occasions, Fecal Coliforms and E. Coli were present. The District Officer was notified in each case. Weekly sampling of the Doan's Hollow treated water conducted by the operations personnel did not confirm these bacteriological results. The treated sample line used by the plant personnel differs from the DWSP sample line. It is suspected that the DWSP line provides water which has not had adequate contact time with Sodium Hypochlorite to be fully



disinfected.

Coliforms were detected only once in the treated water from the plant, and none of the distribution system samples showed the presence of coliforms.

Standard Plate Count is a test used to supplement routine analysis for Coliform bacteria. The limit for Standard Plate Count (at 35 C after 48 hours) in the ODWO is 500 organisms per mL (based on a geometric mean of 5 or more samples). High Standard Plate Counts were present in one treated plant water and distribution system Site 1 free flow sample. While no indicators of unsafe water were detected at this location, the high Standard Plate Count may be indicative of a deterioration in conditions in the distribution system. A total Chlorine Residual of 0.90 mg/L was detected at this sample location. The water temperature rose during the summer months. The high Standard Plate Count obtained for the month of July may reflect increased bacteriological growth as a result of the increased temperature.

Due to its sampling frequency of once per month, the DWSP is not designed to evaluate all aspects of the bacteriological quality of water. Routine bacteriological monitoring as recommended in the ODWO is carried out by the operating authority. Water from the Port Dover Water Treatment Plant, in terms of the limited DWSP bacteriological examination, was of good quality. The indications of unsafe water quality from the Doan's Hollow supply

may be a function of the sampling procedure.

### Inorganic and Physical

#### **Laboratory and Field Chemistry**

The results for the Laboratory Chemistry and Field Chemistry scans were below any applicable health related ODWOs.

There are ODWOs that are set for parameters which are related to aesthetic quality rather than health. One of these is Organic Nitrogen. Organic Nitrogen is calculated by subtracting the Ammonia (Ammonium Total) value from the Total Kjeldahl Nitrogen (Nitrogen Tot Kjeld) value. In a number of treated water samples and distribution system samples Organic Nitrogen values exceeded the aesthetic ODWO of 0.15 mg/L. When Organic Nitrogen exceeds 0.15 mg/l in treated water some taste and odour problems can result.

This guideline is exceeded in most supplies. Based on the information obtained from the DWSP, which generally indicates no problems with this parameter exceedence, the guideline may be modified when the ODWOs are reviewed.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The desired ODWO was exceeded in

some treated and distribution site waters in the Port Dover supply.

Comparison of the results for parameters such as hardness, conductivity, calcium, alkalinity and total nitrates indicates that the distribution system is receiving a combined water from both the treatment plant and Doan's Hollow.

#### **Metals**

The results reported for the Metals scan were below any applicable health related ODWOS.

Copper, Iron and Manganese levels for the plant water were lower in the treated as compared to the raw. This is a result of the treatment process. The addition of polyaluminum chloride as a coagulant to the raw water and the resulting coagulation/settling process has been shown to reduce the levels of most metals. The levels increased in the distribution system as compared to the treated water, this is probably due to the mixing of plant water with that from the Doan's Hollow supply in the distribution system.

Elevated levels of Copper, Iron, Lead and Zinc were detected in the standing samples as compared to the free flow distribution samples, indicating that very small quantities of these metals were leached from the household plumbing as the water stood overnight.

Cadmium exhibited slightly elevated levels in the Site 1 standing samples. An isolated occurrence of 3.0 ug/L in the October free flow sample did not exceed the ODWO of 5.0 ug/L.

At present, there is no evidence that Aluminum is physiologically harmful and no health limit has been specified. The ODWOs indicate that a useful guideline is to maintain a residual below 0.1 mg/L as Al in the water leaving the plant to avoid post precipitation problems. The measure of residual Aluminum in the treated water is important to indicate the efficiency of the treatment process. Aluminum values exceeded the operational guideline a total of thirteen times in the treated waters from the plant and distribution system.

#### Organic Parameters

##### **Chloroaromatics**

The results of the Chloroaromatics scan showed that five parameters were detected:

- 1,2,3 Trichlorobenzene
- 1,3,5 Trichlorobenzene
- Hexachloroethane
- Pentachlorobenzene
- 2,3,6 Trichlorotoluene

1,2,3 Trichlorobenzene was detected at a trace level, once in the treated water.

1,3,5 Trichlorobenzene was detected at trace levels, once in the treated water and once in the distribution system Site 1 water.

Hexachloroethane was detected at trace levels, once in the raw water, three times in the treated water and four times in the distribution system Site 1 and Site 2 waters. It was also found at a trace level, once in the raw and treated water from Doan's Hollow. A positive result of 12.00 ng/L was detected in the May distribution system Site 2 sample. No drinking water limit exists for Hexachloroethane, the United States Environmental Protection Agency has set an Ambient Water Quality (AWQ) Guideline of 1900 ng/L. AWQ guidelines are designed to ensure that surface water, used as a drinking water source and from which fish are consumed, does not contain substances at levels that would be hazardous to human health. Since both water and fish consumption are considered, AWQ guidelines are usually more stringent than any corresponding drinking water guideline. The positive occurrence was well below the AWQ guideline.

Pentachlorobenzene was detected at a trace level, once in the raw water.

2,3,6 Trichlorotoluene was detected at trace levels, once in both the distribution system Site 1 and 2 waters.

Review of these results, along with information from other water supplies on DWSP, would indicate that certain Chloroaromatics

appear more frequently in the treated water than in the raw and almost always only at trace levels. These occurrences could possibly be due to a reaction of chlorine with organics present in the water or in the distribution system.

#### **Chlorophenols**

The results of the Chlorophenols scan showed that no Chlorophenols were detected.

#### **Pesticides and PCB (Polychlorinated Biphenyls)**

The results of the Pesticides and PCB scan showed that four pesticides were detected:

Alpha BHC

Beta BHC

Lindane

PPDDE

Lindane consist of several isomers of BHC (Benzene Hexachloride). Alpha BHC is the isomer predominantly found in water from the Great Lakes Basin as indicated in results from other water supplies on DWSP.

Alpha BHC was detected at trace levels, eight times in the raw water, five times in the treated water, six times in the distribution system Site 1 water and Site 2 water. Alpha BHC was detected at a trace level, once in the raw water from Doan's Hollow.

Beta BHC was detected at a trace level, once in the treated water from Doan's Hollow.

Lindane was detected at trace levels, twice in the raw water, three times in the treated water and distribution system Site 1 water and once in the Site 2 water.

PPDDE was detected at a trace level once in the treated water from Doan's Hollow.

#### **Specific Pesticides**

Results of the Specific Pesticides scan showed that three pesticides were detected:

Atrazine

Bladex

Prometone

Atrazine was detected at trace levels, once in the treated water and twice in the distribution system Site 2 water.

Bladex was detected at a trace level, once in the distribution system Site 2 water.

Prometone was detected at a trace level, once in the distribution system Site 2 water.

#### **Phenolics**

Phenolic compounds were detected at trace levels, three times in

the raw water and six times in the treated water. In the Doan's Hollow treated and raw water Phenolic compounds were detected at trace levels, once in the raw and twice in the treated water. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

#### **Polynuclear Aromatic Hydrocarbons (PAHs)**

The results of the PAH scan showed that no PAHs were detected.

#### **Volatiles**

The results of the Volatiles scan showed that six parameters, other than Trihalomethanes (THMs), were detected:

Benzene

Toluene

Ethylbenzene

Para and Meta-Xylene

Ortho-Xylene

1,1,1 Trichloroethane

Benzene was detected at trace levels, twice in the treated, distribution system Site 1 water and once in the Site 2 water. Five positive results were detected however, in each case the Laboratory suspected unreliable results as indicated by the remark code 'UIN'.

Toluene was detected at trace levels, once in the plant treated, Doan's Hollow treated and distribution system Site 2 water and twice in the distribution system site 1 water. A total of seventeen positive results were detected in all samples. Three



of these results were due to contamination as indicated by the remark codes 'UCS' and 'UCR'. All other positive results ranging from .50 ug/L to 1.6 ug/L were below the California State Department of Health Guideline Value of 100 ug/L. Subsequent to the development of Table 5 ,Health and Welfare Canada have published an Aesthetic Objective (AO) for Toluene in drinking water of 24 ug/L. AOs are set at values that are below those which could be derived based on health considerations.

Ethylbenzene was detected at trace levels, once in the raw water, seven times in the treated water, twice in the treated water from Doan's Hollow, seven times in the distribution system Site 1 water and twice in the Site 2 water.

Para and Meta-Xylene are measured as one compound, M-Xylene and were detected at trace levels, once in the raw water, five times in the treated water, seven times in the distribution system Site 1 water and three times in the Site 2 water. Positive results were detected in the June and July treated water and the June distribution system Site 1 sample. All positive values found were below the California State Department of Health Drinking Water Guideline of 620 ug/L, and the newly published Canadian Health and Welfare AO of 300 ug/L.

Ortho-Xylene (O-Xylene) was detected at trace levels, once in the raw water, four times in the treated water, seven times in the distribution system Site 1 water and three times in the Site 2 water. A positive result of 0.600 ug/L was detected in the

August treated water sample. This is below the California State Department of Health Drinking Water Guideline of 620 ug/L or the newly published Canadian Health and Welfare AO of 300 ug/L.

While these volatiles are typically found on an occasional basis at other water supplies included on the DWSP, the frequent occurrence of Toluene, Ethylbenzene and the Xylenes predominantly in the treated water at the plant is unusual; it could be due to a source of contamination within the plant.

A positive Dichloromethane result was found in the December distribution system Site 2 sample. The laboratory suspected contamination as indicated by the remark code 'UCS'.

1,1,1 Trichloroethane was detected at a trace level, once in the treated water from Doan's Hollow. A positive result for 1,1,1 Trichloroethane was detected in the March treated water sample from Doan's Hollow. The value of 1.0 ug/L is below the United States Environmental Protection Agency's Maximum Contaminant Level for Drinking Water of 200.0 ug/L.

THMs are acknowledged to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised mainly of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and Total THMs were detected in all the treated water samples and distribution system waters. Bromoform was detected at trace levels, once in the raw water, three times in the treated, twice in the distribution system Site 1 and once in the Site 2 water.

All THM occurrences were well below the ODWO of 350 ug/l for Total THMs.

THMs were present in seven of the raw water samples. This would indicate that low levels of chlorine were present in these samples.

#### CONCLUSIONS

The Port Dover Water Treatment plant with the Doan's Hollow infiltration pond for the sample year of 1987 produced good quality water at the plant and this was maintained throughout the distribution system.

No health related guidelines, for organic or inorganic parameters, were exceeded during 1987.

#### RECOMMENDATIONS

Four recommendations can be made and are as follows:

- 1) The data base should be reviewed in consultation with Regional, Plant and DWSP personnel to determine if sampling location, sampling frequency and the number of parameters analysed could be revised to allow for a more efficient

characterization of the water.

2) During 1987 seven raw water plant samples contained THMs indicating that low levels of chlorine were present. This sample site should be reassessed to ensure that it still meets the DWSP sampling protocol.

3) The Doan's Hollow treated water sample site should be moved to ensure that the time of contact between the water and Sodium Hypochlorite is sufficient to supply full disinfection.

4) The source of the volatiles (Toluene, Ethylbenzene and the Xylenes), although the levels found in the treated water do not exceed health related guidelines, should be investigated.

TABLE 3

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SAMPLE DAY CONDITIONS

## TREATMENT CHEMICAL DOSAGES (MG/L)

## PRE-CHLORINATION

## COAGULATION

## POST-CHLORINATION

## CHLORINE

## POLY ALUMINUM CHLORIDE

## CHLORINE

RETENTION FLOW  
TIME(HRS) (1000 M3)

DATE

MAR 23	2.0	2.1	1.54	6.86	.44
APR 27	2.0	2.6	1.80	6.20	.70
MAY 25	2.0	3.1	1.60	7.33	.52
JUN 22	2.0	3.6	.60	5.00	2.20
JUL 27	2.0	6.0	.45	9.82	1.76
AUG 24	2.0	3.1	.62	7.42	1.37
SEP 29	2.0	2.6	2.40	6.00	.30
OCT 27	2.0	2.1	1.80	8.00	.80
NOV 24	2.0	2.0	1.40	4.15	.40
DEC 16	2.0	2.8	1.50	8.00	.40

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

SAMPLE DAY CONDITIONSTREATMENT CHEMICAL DOSAGES (MG/L)

## PRE-CHLORINATION

## SODIUM HYPOCHLORITE

DATE	RETENTION TIME(HRS)	FLOW (1000 M3)	
MAR 27	.1	1.3	1.18
APR 27	.2	1.3	1.40
JUN 22	1.0	1.0	1.40
AUG 24	.5	1.2	.71
SEP 29	.2	1.2	.90
OCT 26	.5	1.2	1.00
NOV 23	.5	1.2	1.00
DEC 14	1.0	1.2	1.20

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
BACTERIOLOGICAL	AEROMONAS SP	0	0	0	0	0	0	1	0	0	0	0	0
	COLIFORM	0	0	0	0	0	0	1	0	0	0	0	0
	ESCHERICHIA COLI BY PRESENCE/ABSENCE	0	0	0	0	0	0	1	0	0	0	0	0
	FECAL COLIFORM	0	0	0	0	0	0	1	0	0	0	0	0
	FECAL COLIFORM MEMBRANE FILTRATION	8	4	0	0	0	0	0	0	0	0	0	0
	P/A BOTTLE	0	0	0	9	0	0	9	1	0	6	0	0
	STANDARD PLATE COUNT MEMBRANE FILT.	6	6	0	9	5	0	9	7	0	6	5	0
	STAPH AUREUS	0	0	0	0	0	0	1	0	0	0	0	0
	TOTAL COLIFORM BACKGROUND MF	8	7	0	9	4	0	9	0	0	6	1	0
	TOTAL COLIFORM MEMBRANE FILTRATION	8	6	0	9	1	0	9	0	0	6	0	0
*TOTAL SCAN BACTERIOLOGICAL		30	23	0	36	10	0	41	8	0	24	6	0
*TOTAL GROUP BACTERIOLOGICAL		30	23	0	36	10	0	41	8	0	24	6	0
CHEMISTRY (FLD)	FIELD COMBINED CHLORINE RESIDUAL	1	1	0	10	10	0	18	18	0	9	9	0
	FIELD FREE CHLORINE RESIDUAL	2	2	0	10	10	0	20	20	0	15	15	0
	FIELD PH	10	10	0	10	10	0	20	20	0	16	16	0
	FIELD TEMPERATURE	10	10	0	10	10	0	20	20	0	12	12	0
	FIELD TOTAL CHLORINE RESIDUAL	2	2	0	10	10	0	15	15	0	14	14	0
	FIELD TURBIDITY	9	9	0	9	9	0	18	18	0	14	14	0
*TOTAL SCAN CHEMISTRY (FLD)		34	34	0	59	59	0	111	111	0	80	80	0
CHEMISTRY (LAB)	ALKALINITY	10	10	0	10	10	0	20	20	0	14	14	0
	AMMONIUM TOTAL	10	6	3	10	3	6	20	12	7	14	10	3

TABLE 4

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
CHEMISTRY (LAB)	CALCIUM	10	10	0	10	10	0	20	20	0	14	14	0
	CHLORIDE	10	10	0	10	10	0	20	20	0	14	14	0
	COLOUR	10	5	4	10	1	5	20	2	18	14	3	11
	CONDUCTIVITY	10	10	0	10	10	0	20	20	0	14	14	0
	CYANIDE	10	0	0	10	0	0	10	0	0	7	0	0
	FLUORIDE	10	10	0	10	10	0	20	20	0	14	14	0
	HARDNESS	10	10	0	10	10	0	20	20	0	14	14	0
	MAGNESIUM	10	10	0	10	10	0	20	20	0	14	14	0
	NITRITE	10	3	7	10	0	6	20	0	16	14	0	11
	NITROGEN TOTAL KJELDAHL	10	10	0	10	9	1	20	18	2	14	11	3
	PH	10	10	0	10	10	0	20	20	0	14	14	0
	PHOSPHORUS FIL REACT	10	4	5	10	0	5	0	0	0	0	0	0
	PHOSPHORUS TOTAL	10	6	3	10	1	5	0	0	0	0	0	0
	SODIUM	10	10	0	10	10	0	20	20	0	14	14	0
	TOTAL NITRATES	10	10	0	10	10	0	20	20	0	14	14	0
	TOTAL SOLIDS	10	10	0	10	10	0	19	19	0	14	14	0
	TURBIDITY	10	10	0	10	7	3	20	19	1	14	14	0
*TOTAL SCAN CHEMISTRY (LAB)		190	154	22	190	131	31	329	270	44	231	192	28
METALS	ALUMINUM	10	10	0	10	10	0	19	19	0	14	14	0
	ARSENIC	10	0	0	10	0	0	20	0	0	14	0	0
	BARIUM	10	10	0	10	10	0	19	19	0	14	14	0
	BERYLLIUM	10	0	0	10	0	0	19	0	0	14	0	0
	BORON	10	3	7	10	3	7	19	6	12	14	6	8
	CADMIUM	10	0	0	10	0	0	19	7	0	14	1	0



TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE OF RESULTS (1987)

SCAN ----	PARAMETER -----	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
METALS	CHROMIUM	10	5	0	10	5	0	19	12	0	14	6	0
	COBALT	10	1	0	10	1	0	19	6	0	14	3	0
	COPPER	10	9	0	10	5	0	19	19	0	14	14	0
	IRON	10	10	0	10	6	0	19	18	0	14	14	0
	LEAD	10	1	0	10	1	0	19	10	0	14	3	0
	MANGANESE	10	10	0	10	3	0	19	18	0	14	14	0
	MERCURY	10	6	0	10	5	0	10	9	0	7	3	0
	MOLYBDENUM	10	2	0	10	8	0	19	10	0	14	6	0
	NICKEL	10	5	0	10	4	0	19	11	0	14	8	0
	SELENIUM	10	0	0	10	0	0	20	0	0	14	0	0
	STRONTIUM	10	10	0	10	10	0	19	19	0	14	14	0
	URANIUM	9	9	0	10	9	0	20	19	0	14	14	0
	VANADIUM	10	3	0	10	0	0	19	1	0	14	0	0
	ZINC	10	6	0	10	5	0	19	14	0	14	11	0
*TOTAL SCAN METALS		199	100	7	200	85	7	374	217	12	273	145	8
*TOTAL GROUP INORGANIC & PHYSICAL		423	288	29	449	275	38	814	598	56	584	417	36
CHLOROAROMATICS	123 TRICHLOROBENZENE	10	0	0	9	0	1	8	0	0	7	0	0
	1234 TETRACHLOROBENZENE	10	0	0	9	0	0	8	0	0	7	0	0
	1235 TETRACHLOROBENZENE	10	0	0	9	0	0	8	0	0	7	0	0
	124 TRICHLOROBENZENE	10	0	0	9	0	0	8	0	0	7	0	0
	1245 TETRACHLOROBENZENE	10	0	0	9	0	0	8	0	0	7	0	0
	135 TRICHLOROBENZENE	10	0	0	9	0	1	8	0	1	7	0	0
	236 TRICHLOROTOLUENE	10	0	0	9	0	0	8	0	1	7	0	1
	245 TRICHLOROTOLUENE	10	0	0	9	0	0	8	0	0	7	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE OF RESULTS (1987)

SCAN ----	PARAMETER -----	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
CHLOROAROMATICS	26A TRICHLOROTOLUENE	10	0	0	9	0	0	8	0	0	7	0	0
	HEXACHLOROBUTADIENE	10	0	0	9	0	0	8	0	0	7	0	0
	HEXACHLOROETHANE	10	0	1	9	0	3	8	0	4	7	1	4
	OCTACHLOROSTYRENE	10	0	0	9	0	0	8	0	0	7	0	0
	PENTACHLOROBENZENE	10	0	1	9	0	0	8	0	0	7	0	0
*TOTAL SCAN CHLOROAROMATICS		130	0	2	117	0	5	104	0	6	91	1	5
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	2345 TETRACHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	2356 TETRACHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	245-TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	246-TRICHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
	PENTACHLOROPHENOL	2	0	0	2	0	0	0	0	0	0	0	0
*TOTAL SCAN CHLOROPHENOLS		12	0	0	12	0	0	0	0	0	0	0	0
PAH	ANTHANTHRENE	0	0	0	0	0	0	0	0	0	0	0	0
	ANTHRACENE	4	0	0	2	0	0	0	0	0	0	0	0
	BENZO(A) ANTHRACENE	4	0	0	2	0	0	0	0	0	0	0	0
	BENZO (A) PYRENE	4	0	0	2	0	0	0	0	0	0	0	0
	BENZO(B) CHRYSENE	4	0	0	2	0	0	0	0	0	0	0	0
	BENZO(B) FLUORANTHENE	4	0	0	2	0	0	0	0	0	0	0	0
	BENZO(E)PYRENE	4	0	0	2	0	0	0	0	0	0	0	0
	BENZO(G,H,I) PERYLENE	4	0	0	2	0	0	0	0	0	0	0	0

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SCAN	PARAMETER	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
PAH	BENZO(J) FLUORANTHENE	0	0	0	0	0	0	0	0	0	0	0	0
	BENZO(K) FLUORANTHENE	4	0	0	2	0	0	0	0	0	0	0	0
	CHRYSENE	4	0	0	2	0	0	0	0	0	0	0	0
	CORONENE	4	0	0	2	0	0	0	0	0	0	0	0
	DIBENZO(A,H) ANTHRACENE	4	0	0	2	0	0	0	0	0	0	0	0
	DIMETHYL BENZO(A) ANTHRACENE	4	0	0	2	0	0	0	0	0	0	0	0
	FLUORANTHENE	4	0	0	2	0	0	0	0	0	0	0	0
	INDENO(1,2,3-C,D) PYRENE	4	0	0	2	0	0	0	0	0	0	0	0
	PERYLENE	4	0	0	2	0	0	0	0	0	0	0	0
	PHENANTHRENE	4	0	0	2	0	0	0	0	0	0	0	0
	PYRENE	4	0	0	2	0	0	0	0	0	0	0	0
*TOTAL SCAN PAH		68	0	0	34	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALACHLOR	10	0	0	9	0	0	9	0	0	7	0	0
	ALDRIN	10	0	0	9	0	0	8	0	0	7	0	0
	ALPHA BHC	10	0	8	9	0	5	8	0	6	7	0	6
	ALPHA CHLORDANE	10	0	0	9	0	0	8	0	0	7	0	0
	ATRATONE	10	0	0	9	0	0	9	0	0	7	0	0
	BETA BHC	10	0	0	9	0	0	8	0	0	7	0	0
	DIELDRIN	10	0	0	9	0	0	8	0	0	7	0	0
	ENDRIN	10	0	0	9	0	0	8	0	0	7	0	0
	ETHYLENE DIBROMIDE	10	0	0	10	0	0	10	0	0	7	0	0
	GAMMA CHLORDANE	10	0	0	9	0	0	8	0	0	7	0	0
	HEPTACHLOR	10	0	0	9	0	0	8	0	0	7	0	0
	HEPTACHLOR EPOXIDE	10	0	0	9	0	0	8	0	0	7	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
PESTICIDES & PCB	HEXACHLOROBENZENE	10	0	0	9	0	0	8	0	0	7	0	0
	LINDANE	10	0	2	9	0	3	8	0	3	7	0	1
	METHOXYCHLOR	10	0	0	9	0	0	8	0	0	7	0	0
	MIREX	10	0	0	9	0	0	8	0	0	7	0	0
	O,P-DDT	10	0	0	9	0	0	8	0	0	7	0	0
	OXYCHLORDANE	10	0	0	9	0	0	8	0	0	7	0	0
	PCB	10	0	0	9	0	0	8	0	0	7	0	0
	PP-DDD	10	0	0	9	0	0	8	0	0	7	0	0
	PPDDE	10	0	0	9	0	0	8	0	0	7	0	0
	PPDDT	10	0	0	9	0	0	8	0	0	7	0	0
	THIODAN I	10	0	0	9	0	0	8	0	0	7	0	0
	THIODAN II	10	0	0	9	0	0	8	0	0	7	0	0
	THIODAN SULPHATE	10	0	0	9	0	0	8	0	0	7	0	0
*TOTAL SCAN PESTICIDES & PCB		250	0	10	226	0	8	204	0	9	175	0	7
<hr/>													
PHENOLICS		8	1	3	9	0	5	0	0	0	0	0	0
*TOTAL SCAN PHENOLICS		8	1	3	9	0	5	0	0	0	0	0	0
<hr/>													
SPECIFIC PESTICIDES		2	0	0	1	0	0	0	0	0	0	0	0
	2,4 D PROPIONIC ACID	2	0	0	2	0	0	0	0	0	0	0	0
	2,4,5-T	2	0	0	2	0	0	0	0	0	0	0	0
	2,4-D	2	0	0	2	0	0	0	0	0	0	0	0
	24-DICHLOROPHENOXYBUTYRIC	2	0	0	2	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
SPECIFIC PESTICIDES	PROPOXUR	2	0	0	1	0	0	0	0	0	0	0	0
	RELDAN	1	0	0	2	0	0	0	0	0	0	0	0
	RONNEL	1	0	0	2	0	0	0	0	0	0	0	0
	SENCOR	10	0	0	9	0	0	9	0	0	7	0	0
	SEVIN (CARBARYL)	2	0	0	1	0	0	0	0	0	0	0	0
	SILVEX	2	0	0	2	0	0	0	0	0	0	0	0
	SIMAZINE	10	0	0	9	0	0	9	0	0	7	0	0
	SUTAN (BUTYLATE)	2	0	0	1	0	0	0	0	0	0	0	0
	TOXAPHENE	0	0	0	0	0	0	0	0	0	0	0	0
*TOTAL SCAN SPECIFIC PESTICIDES		132	0	0	126	0	1	81	0	0	63	0	4
VOLATILES	1,1 DICHLOROETHANE	10	0	0	10	0	0	10	0	0	7	0	0
	1,1 DICHLOROETHYLENE	10	0	0	10	0	0	10	0	0	7	0	0
	1,2 DICHLOROBENZENE	10	0	0	10	0	0	10	0	0	7	0	0
	1,2 DICHLOROETHANE	10	0	0	10	0	0	10	0	0	7	0	0
	1,2 DICHLOROPROPANE	10	0	0	10	0	0	10	0	0	7	0	0
	1,3 DICHLOROBENZENE	10	0	0	10	0	0	10	0	0	7	0	0
	1,4 DICHLOROBENZENE	10	0	0	10	0	0	10	0	0	7	0	0
	111, TRICHLOROETHANE	10	0	0	10	0	0	10	0	0	7	0	0
	112 TRICHLOROETHANE	10	0	0	10	0	0	10	0	0	7	0	0
	1122 TETRA-CHLOROETHANE	10	0	0	10	0	0	10	0	0	7	0	0
	BENZENE	10	1	0	10	2	2	10	1	2	7	1	1
	BROMOFORM	10	0	1	10	0	3	10	0	2	7	0	1
	CARBON TETRACHLORIDE	10	0	0	10	0	0	10	0	0	7	0	0
	CHLOROBENZENE	10	0	0	10	0	0	10	0	0	7	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
SPECIFIC PESTICIDES	AMETRYNE	10	0	0	9	0	0	9	0	0	7	0	0
	AMINOCARB	0	0	0	0	0	0	0	0	0	0	0	0
	ATRAZINE	10	0	0	9	0	1	9	0	0	7	0	2
	BENOMYL	0	0	0	0	0	0	0	0	0	0	0	0
	BLADEX	10	0	0	9	0	0	9	0	0	7	0	1
	BUX (METALKAMATE)	2	0	0	1	0	0	0	0	0	0	0	0
	CARBOFURAN	2	0	0	1	0	0	0	0	0	0	0	0
	DIALATE	2	0	0	1	0	0	0	0	0	0	0	0
	DIAZINON	1	0	0	2	0	0	0	0	0	0	0	0
	DICAMBA	2	0	0	2	0	0	0	0	0	0	0	0
	DICHLOROVOS	1	0	0	2	0	0	0	0	0	0	0	0
	DURSBAN	1	0	0	2	0	0	0	0	0	0	0	0
	EPTAM	2	0	0	1	0	0	0	0	0	0	0	0
	ETHION	1	0	0	2	0	0	0	0	0	0	0	0
	GUTHION	0	0	0	0	0	0	0	0	0	0	0	0
	IPC	2	0	0	1	0	0	0	0	0	0	0	0
	MALATHION	1	0	0	2	0	0	0	0	0	0	0	0
	METHYL PARATHION	1	0	0	2	0	0	0	0	0	0	0	0
	METHYLTRITHION	1	0	0	2	0	0	0	0	0	0	0	0
	METOLACHLOR	10	0	0	9	0	0	9	0	0	7	0	0
	MEVINPHOS	1	0	0	2	0	0	0	0	0	0	0	0
	PARATHION	1	0	0	2	0	0	0	0	0	0	0	0
	PHORATE (THIMET)	1	0	0	2	0	0	0	0	0	0	0	0
	PICHLORAM	0	0	0	0	0	0	0	0	0	0	0	0
	PROMETONE	10	0	0	9	0	0	9	0	0	7	0	1
	PROMETRYNE	10	0	0	9	0	0	9	0	0	7	0	0
	PROPAZINE	10	0	0	9	0	0	9	0	0	7	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S.

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW WATER			TREATED WATER			SITE 1			SITE 2		
		# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE	# ANALYSED	POSITIVE	TRACE
VOLATILES	CHLORODIBROMOMETHANE	10	1	1	10	10	0	10	10	0	7	7	0
	CHLOROFORM	10	4	3	10	10	0	10	10	0	7	7	0
	DICHLOROBROMOMETHANE	10	3	1	10	10	0	10	10	0	7	7	0
	ETHYLBENZENE	10	0	1	10	0	7	10	0	7	7	0	2
	M-XYLENE	10	0	1	10	2	5	10	1	7	7	0	3
	METHYLENE CHLORIDE	9	0	0	9	0	0	8	0	0	5	1	0
	O-XYLENE	10	0	1	10	1	4	10	0	7	7	0	3
	P-XYLENE	10	0	0	10	0	0	10	0	0	7	0	0
	TETRACHLOROETHYLENE	10	0	0	10	0	0	10	0	0	7	0	0
	TOLUENE	10	1	0	10	7	1	10	6	2	7	3	1
	TOTAL TRIHALOMETHANES	10	7	0	10	10	0	10	10	0	7	7	0
	TRANS 1,2 DICHLOROETHYLENE	10	0	0	10	0	0	10	0	0	7	0	0
	TRICHLOROETHYLENE	10	0	0	10	0	0	10	0	0	7	0	0
	TRIFLUOROCHLOROTOLUENE	10	0	0	10	0	0	10	0	0	7	0	0
*TOTAL SCAN VOLATILES		279	17	9	279	52	22	278	48	27	194	33	11
*TOTAL GROUP ORGANIC		879	18	24	803	52	41	667	48	42	523	34	27
TOTAL		1332	329	53	1288	337	79	1522	654	98	1131	457	63

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	AEROMONAS SP	.	.	.	5	0	0
	COLIFORM	.	.	.	5	5	0
	E. COLI (P/A)	.	.	.	5	3	0
	FECAL COLIFORM	.	.	.	5	3	0
	FECAL COLIFORM MF	7	7	0	.	.	.
	P/A BOTTLE	.	.	.	6	5	0
	STANDRD PLATE CNT MF	5	5	0	6	6	0
	STAPH AUREUS	.	.	.	5	0	0
	T COLIFORM BCKGRD MF	7	7	0	6	5	0
	TOTAL COLIFORM MF	7	7	0	6	5	0
*TOTAL SCAN BACTERIOLOGICAL		26	26	0	49	32	0
*TOTAL GROUP BACTERIOLOGICAL		26	26	0	49	32	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	7	7	0
	FLD CHLORINE FREE	.	.	.	8	8	0
	FLD PH	8	8	0	8	8	0
	FLD TURBIDITY	7	7	0	7	7	0
	TEMPERATURE	7	7	0	8	8	0
	TOTAL CHLORINE	1	1	0	8	8	0
*TOTAL SCAN CHEMISTRY (FLD)		23	23	0	46	46	0
CHEMISTRY (LAB)	ALKALINITY	8	8	0	8	8	0



TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
CHEMISTRY (LAB)	AMMONIUM TOTAL	8	4	3	8	1	7
	CALCIUM	8	8	0	8	8	0
	CHLORIDE	8	8	0	8	8	0
	COLOUR	8	8	0	8	6	1
	CONDUCTIVITY	8	8	0	8	8	0
	CYANIDE	7	0	0	8	0	0
	FLUORIDE	8	8	0	8	8	0
	HARDNESS	8	8	0	8	8	0
	MAGNESIUM	8	8	0	8	8	0
	NITRITE	8	8	0	8	2	3
	NITROGEN TOT KJELD	8	4	4	8	3	5
	PH	8	8	0	8	8	0
	PHOSPHORUS FIL REACT	8	6	2	8	7	1
	PHOSPHORUS TTL-UNFIL	7	0	7	7	0	7
	RESIDUE (TOTAL)	8	8	0	8	8	0
	SODIUM	8	8	0	8	8	0
	TOTAL NITRATES	8	8	0	8	8	0
	TURBIDITY	8	8	0	8	8	0
*TOTAL SCAN CHEMISTRY (LAB)		150	126	16	151	115	24
METALS	ALUMINUM	7	3	0	8	5	0
	ARSENIC	7	0	0	8	0	0
	BARIUM	7	7	0	8	8	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
METALS	BERYLLIUM	7	0	0	8	1	0
	BORON	7	3	4	8	3	5
	CADMIUM	7	0	0	8	1	0
	CHROMIUM	7	5	0	8	5	0
	COBALT	7	3	0	8	4	0
	COPPER	7	0	0	8	6	0
	IRON	7	7	0	8	8	0
	LEAD	7	0	0	8	1	0
	MANGANESE	7	7	0	8	8	0
	MERCURY	7	5	0	8	5	0
	MOLYBDENUM	7	0	0	8	1	0
	NICKEL	7	3	0	8	5	0
	SELENIUM	7	0	0	8	0	0
	STRONTIUM	7	7	0	8	8	0
	URANIUM	7	7	0	8	8	0
	VANADIUM	7	1	0	8	2	0
	ZINC	7	5	0	8	7	0
*TOTAL SCAN METALS		140	63	4	160	86	5
*TOTAL GROUP INORGANIC & PHYSICAL		313	212	20	357	247	29
CHLOROAROMATICS	123 TRICHLOROBENZENE	6	0	0	7	0	0
	1234 T-CHLOROBENZENE	6	0	0	7	0	0
	1235 T-CHLOROBENZENE	6	0	0	7	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
CHLOROAROMATICS	124 TRICHLOROBENZENE	6	0	0	7	0	0
	1245 T-CHLOROBENZENE	6	0	0	7	0	0
	135 TRICHLOROBENZENE	6	0	0	7	0	0
	236 TRICHLOROTOLUENE	6	0	0	7	0	0
	245 TRICHLOROTOLUENE	6	0	0	7	0	0
	26A TRICHLOROTOLUENE	6	0	0	7	0	0
	HEXACHLOROBUTADIENE	6	0	0	7	0	0
	HEXACHLOROETHANE	6	0	1	7	0	1
	OCTACHLOROSTYRENE	6	0	0	7	0	0
	PENTACHLOROBENZENE	6	0	0	7	0	0
*TOTAL SCAN CHLOROAROMATICS		78	0	1	91	0	1
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	1	0	0
	2345 T-CHLOROPHENOL	2	0	0	1	0	0
	2356 T-CHLOROPHENOL	2	0	0	1	0	0
	245-TRICHLOROPHENOL	2	0	0	1	0	0
	246-TRICHLOROPHENOL	2	0	0	1	0	0
	PENTACHLOROPHENOL	2	0	0	1	0	0
*TOTAL SCAN CHLOROPHENOLS		12	0	0	6	0	0
PAH	ANTHANTHRENE	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
PAH	ANTHRACENE	3	0	0	4	0	0
	BENZO(A)ANTHRACENE	3	0	0	4	0	0
	BENZO (A) PYRENE	3	0	0	4	0	0
	BENZO(B) CHRYSENE	3	0	0	4	0	0
	BENZO(B) FLUORANTHEN	3	0	0	4	0	0
	BENZO(E)PYRENE	3	0	0	4	0	0
	BENZO(G,H,I) PERYLEN	3	0	0	4	0	0
	BENZO(J) FLUORANTHEN	0	0	0	0	0	0
	BENZO(K) FLUORANTHEN	3	0	0	4	0	0
	CHRYSENE	3	0	0	4	0	0
	CORONENE	3	0	0	4	0	0
	DIBENZO(A,H) ANTHRAC	3	0	0	4	0	0
	DIMETH. BENZ(A)ANTHR	3	0	0	4	0	0
	FLUORANTHENE	3	0	0	4	0	0
	INDENO(1,2,3-C,D) PY	3	0	0	4	0	0
	PERYLENE	3	0	0	4	0	0
	PHENANTHRENE	3	0	0	4	0	0
	PYRENE	3	0	0	4	0	0
*TOTAL SCAN PAH		51	0	0	68	0	0
PESTICIDES & PCB	ALACHLOR	8	0	0	8	0	0
	ALDRIN	6	0	0	7	0	0
	ALPHA BHC	6	0	1	7	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	-RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
PESTICIDES & PCB	ALPHA CHLORDANE	6	0	0	7	0	0
	ATRATONE	8	0	0	8	0	0
	BETA BHC	6	0	0	7	0	1
	DIELDRIN	6	0	0	7	0	0
	ENDRIN	6	0	0	7	0	0
	ETHYLENE DIBROMIDE	7	0	0	8	0	0
	GAMMA CHLORDANE	6	0	0	7	0	0
	HCB	6	0	0	7	0	0
	HEPTACHLOR	6	0	0	7	0	0
	HEPTACHLOR EPOXIDE	6	0	0	7	0	0
	LINDANE	6	0	0	7	0	0
	METHOXYCHLOR	6	0	0	7	0	0
	MIREX	6	0	0	7	0	0
	OPDDT	6	0	0	7	0	0
	OXYCHLORDANE	6	0	0	7	0	0
	PCB	6	0	0	7	0	0
	PP-DDD	6	0	0	7	0	0
	PPDDE	6	0	0	7	0	1
	PPDDT	6	0	0	7	0	0
	THIODAN I	6	0	0	7	0	0
	THIODAN II	6	0	0	7	0	0
	THIODAN SULPHATE	6	0	0	7	0	0
*TOTAL SCAN PESTICIDES & PCB		155	0	1	178	0	2

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
PHENOLICS	PHENOL	6	2	1	6	0	2
*TOTAL SCAN PHENOLICS		6	2	1	6	0	2
SPECIFIC PESTICIDES	2,4,5-T	2	0	0	1	0	0
	2,4-D	2	0	0	1	0	0
	2,4-DP	2	0	0	1	0	0
	24DCHLRPHENOXYBUTYRC	2	0	0	1	0	0
	AMETRYNE	8	0	0	8	0	0
	AMINOCARB	0	0	0	0	0	0
	ATRAZINE	8	0	0	8	0	0
	BENOMYL	0	0	0	0	0	0
	BLADEX	8	0	0	8	0	0
	BUX	1	0	0	1	0	0
	CARBOFURAN	1	0	0	1	0	0
	CIPC	1	0	0	1	0	0
	DIALATE	1	0	0	1	0	0
	DIAZINON	1	0	0	1	0	0
	DICAMBA	2	0	0	1	0	0
	DICHLOROVOS	1	0	0	1	0	0
	DURSBAN	1	0	0	1	0	0
	EPTAM	1	0	0	1	0	0
	ETHION	1	0	0	1	0	0
	GUTHION	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	IPC	1	0	0	1	0	0
	MALATHION	1	0	0	1	0	0
	METHYL PARATHION	1	0	0	1	0	0
	METHYLTRITHION	1	0	0	1	0	0
	METOLACHLOR	8	0	0	8	0	0
	MEVINPHOS	1	0	0	1	0	0
	PARATHION	1	0	0	1	0	0
	PHORATE	1	0	0	1	0	0
	PICHLORAM	0	0	0	0	0	0
	PROMETONE	8	0	0	8	0	0
	PROMETRYNE	8	0	0	8	0	0
	PROPAZINE	8	0	0	8	0	0
	PROPOXUR	1	0	0	1	0	0
	RELDAN	1	0	0	1	0	0
	RONNEL	1	0	0	1	0	0
	SENCOR	8	0	0	8	0	0
	SEVIN	1	0	0	1	0	0
	SILVEX	2	0	0	1	0	0
	SIMAZINE	8	0	0	8	0	0
	SUTAN	1	0	0	1	0	0
	TOXAPHENE	0	0	0	0	0	0
*TOTAL SCAN SPECIFIC PESTICIDES		105	0	0	99	0	0
VOLATILES	1,1 DICHLOROETHANE	7	0	0	8	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
VOLATILES	1,1 DICHLOROETHYLENE	7	0	0	8	0	0
	1,2 DICHLOROBENZENE	7	0	0	8	0	0
	1,2 DICHLOROETHANE	7	0	0	8	0	0
	1,2 DICHLOROPROPANE	7	0	0	8	0	0
	1,3 DICHLOROBENZENE	7	0	0	8	0	0
	1,4 DICHLOROBENZENE	7	0	0	8	0	0
	111, TRICHLOROETHANE	7	0	0	8	1	1
	112 TRICHLOROETHANE	7	0	0	8	0	0
	1122 T-CHLOROETHANE	7	0	0	8	0	0
	BENZENE	7	0	0	8	0	0
	BROMOFORM	7	0	0	8	0	0
	CARBON TETRACHLORIDE	7	0	0	8	0	0
	CHLOROBENZENE	7	0	0	8	0	0
	CHLORODIBROMOMETHANE	7	0	0	8	7	1
	CHLOROFORM	7	0	0	8	8	0
	DICHLOROBROMOMETHANE	7	0	0	8	8	0
	DICHLOROMETHANE	6	0	0	7	0	0
	ETHYLBENZENE	7	0	0	8	0	2
	M-XYLENE	7	0	0	8	0	0
	O-XYLENE	7	0	0	8	0	0
	P-XYLENE	7	0	0	8	0	0
	T-CHLOROETHYLENE	7	0	0	8	0	0
	T1,2DICHLOROETHYLENE	7	0	0	8	0	0
	TOLUENE	7	0	0	8	1	1
	TOTL TRIHALOMETHANES	7	0	0	8	8	0



TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER

## SUMMARY TABLE OF RESULTS (1987)

SCAN	PARAMETER	RAW			TREATED		
		TOTAL POSITIVE TRACE			TOTAL POSITIVE TRACE		
VOLATILES	TRICHLOROETHYLENE	7	0	0	8	0	0
	TRIFLUOROCHELOTOLUE	7	0	0	8	0	0
*TOTAL SCAN VOLATILES		195	0	0	223	33	5
*TOTAL GROUP ORGANIC		602	2	3	671	33	10
TOTAL		941	240	23	1077	312	39

## KEY TO TABLES 5 AND 6

- A      ONTARIO DRINKING WATER OBJECTIVES
1. Maximum Acceptable Concentration (MAC)
  - 1+. MAC for Total Trihalomethanes
  - 1\*. MAC for Bacteriological Analyses
- Poor water quality is indicated when :
- total coliform counts  $> 0 < 5$
  - P/A Bottle Test is present after 48 hours
  - Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
  - Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
  - Standard Plate Count should not exceed 500 organisms per ml at 35 deg C within 48 hours
2. Interim Maximum Acceptable Concentration (IMAC)
  3. Maximum Desirable Concentration (MDC)
  4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness  $> 200$  mg/L are considered poor and those in excess of 500 mg/L are unacceptable.
- B      HEALTH & WELFARE CANADA
1. Maximum Acceptable Concentration (MAC)
  2. Proposed MAC
  3. Interim MAC
- C      WORLD HEALTH ORGANIZATION
1. Guideline Value (GV)
  2. Tentative GV
  3. Aesthetic GV
- D      US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
  2. Suggested No-Adverse Effect Level (SNAEL)
  3. Lifetime Health Advisory
  4. EPA Ambient Water Quality Criteria
- F      EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
  2. Aesthetic Guideline Level
  3. Maximum Admissable Concentration (MADC)
- G      CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE
- H      USSR MAXIMUM PERMISSIBLE CONCENTRATION
- I      NEW YORK STATE AMBIENT WATER GUIDELINE

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample

RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
RAW	TREATED		
<hr/>			
BACTERIOLOGICAL			
AEROMONAS SP (0=ABSENT )		DET'N LIMIT = N/A	GUIDELINE = 0 (A1)
MAR	.	0	
APR	.	0	
JUN	.	0	
AUG	.	0	
OCT	.	0	
<hr/>			
E. COLI (P/A) (0=ABSENT )		DET'N LIMIT = N/A	GUIDELINE =
MAR	.	1	
APR	.	1	
JUN	.	0	
AUG	.	0	
OCT	.	1	
<hr/>			
FECAL COLIFORM MF (CT/100ML )		DET'N LIMIT = 0	GUIDELINE = 0 (A1)
MAR	6	.	
APR	18	.	
JUN	30	.	
AUG	17	.	
OCT	6	.	
NOV	8	.	
DEC	212	.	
<hr/>			
FECAL COLIFORM (0=ABSENT )		DET'N LIMIT = N/A	GUIDELINE = 0 (A1)
MAR	.	1	
APR	.	1	
JUN	.	0	
AUG	.	0	
OCT	.	1	
<hr/>			
STANDRD PLATE CNT MF (CT/ML )		DET'N LIMIT = 0	GUIDELINE = 500/ML (A1)
MAR	320	230	
APR	400	148	
JUN	1500	47	
AUG	10P	125	
OCT	840	380	
NOV	600	.	
DEC	10P	11	
<hr/>			
P/A BOTTLE (0=ABSENT )		DET'N LIMIT = 0	GUIDELINE = 0 (A1*)
MAR	.	1	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
RAW	TREATED	
<hr/>		
APR	.	1
JUN	.	1
AUG	.	1
OCT	.	1
DEC	.	0
<hr/>		
STAPH AUREUS (0=ABSENT )		DET'N LIMIT = N/A
		GUIDELINE = 0 (A1)
MAR	.	0
APR	.	0
JUN	.	0
AUG	.	0
OCT	.	0
<hr/>		
COLIFORM (0=ABSENT )		DET'N LIMIT = N/A
		GUIDELINE = 0 (A1)
MAR	.	1
APR	.	1
JUN	.	1
AUG	.	1
OCT	.	1
<hr/>		
TOTAL COLIFORM MF (CT/100ML )		DET'N LIMIT = 0
		GUIDELINE = 5/100ML(A1)
MAR	26 A3C	13 A3C
APR	900	21 A3C
JUN	4300 A3C	1
AUG	500 A3C	0
OCT	800	34 A3C
NOV	500	.
DEC	800	1
<hr/>		
T COLIFORM BCKGRD MF (CT/100ML )		DET'N LIMIT = 0
		GUIDELINE = N/A
MAR	10300	1600
APR	9400	580
JUN	20000	8
AUG	31000	1210
OCT	4500	1700
NOV	3700	.
DEC	24000	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW TREATED

## CHEMISTRY (FLD)

FLD CHLORINE (COMB) (MG/L ) DET'N LIMIT = N/A GUIDELINE = N/A

MAR	.	1.100
APR	.	.100
JUN	.	1.000
AUG	.	.100
SEP	.	.700
NOV	.	1.300
DEC	.	.400

FLD CHLORINE FREE (MG/L ) DET'N LIMIT = N/A GUIDELINE = N/A

MAR	.	1.000
APR	.	1.200
JUN	.	.900
AUG	.	1.000
SEP	.	1.000
OCT	.	1.000
NOV	.	.900
DEC	.	1.100

TOTAL CHLORINE (MG/L ) DET'N LIMIT = N/A GUIDELINE = N/A

MAR	.	1.100
APR	.	1.300
JUN	.	.100
AUG	.	1.100
SEP	.	.300
OCT	.500	1.000
NOV	.	.400
DEC	.	1.500

FLD PH (DMSNLESS ) DET'N LIMIT = N/A GUIDELINE = 6.5-8.5 (A4)

MAR	7.500	7.600
APR	7.600	7.500
JUN	7.300	7.600
AUG	7.500	7.600
SEP	7.500	7.600
OCT	7.500	7.600
NOV	7.600	7.500
DEC	7.500	7.700

TEMPERATURE (DEG.C ) DET'N LIMIT = N/A GUIDELINE = N/A

MAR	9.500	10.000
APR	10.000	10.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
RAW	TREATED	
<hr/>		
JUN	12.500	12.500
AUG	12.000	12.000
SEP	12.000	12.000
OCT	.	11.000
NOV	8.000	8.000
DEC	8.000	9.000
<hr/>		
FLD TURBIDITY (FTU)	)	DET'N LIMIT = N/A
		GUIDELINE = 1.0 (A1)
MAR	.860	.930
APR	.940	.880
JUN	.930	.850
AUG	.780	.680
SEP	.900	.600
OCT	.680	.680
NOV	1.620	.360



TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
RAW	TREATED		
<hr/>			
CHEMISTRY (LAB)			
ALKALINITY (MG/L )		DET'N LIMIT = .200	GUIDELINE = 30-500 (A4)
MAR	196.200	195.200	
APR	202.600	194.300	
JUN	194.900	195.400	
AUG	195.400	195.300	
SEP	197.900	198.800	
OCT	197.700	197.700	
NOV	183.300	195.200	
DEC	178.200	194.500	
<hr/>			
CALCIUM (MG/L )		DET'N LIMIT = .100	GUIDELINE = 100. (F2)
MAR	76.200	76.500	
APR	75.400	74.300	
JUN	81.800	78.400	
AUG	77.400	78.400	
SEP	77.000	77.800	
OCT	75.200	76.000	
NOV	77.200	77.200	
DEC	76.800	71.000	
<hr/>			
CHLORIDE (MG/L )		DET'N LIMIT = .200	GUIDELINE = 250.0 (A3)
MAR	6.000	7.500	
APR	5.500	7.500	
JUN	6.000	7.000	
AUG	5.500	7.000	
SEP	5.500	7.000	
OCT	6.000	7.400	
NOV	5.900	6.800	
DEC	7.900	9.500	
<hr/>			
COLOUR (TCU )		DET'N LIMIT = .5	GUIDELINE = 5.0 (A3)
MAR	5.000	4.000	
APR	5.500	4.000	
JUN	2.500	2.000 <T	
AUG	3.000	3.500	
SEP	3.500	3.500	
OCT	5.500	3.500	
NOV	2.500	2.500	
DEC	3.500	BDL	
<hr/>			
CONDUCTIVITY (UMHO/CM )		DET'N LIMIT = 1	GUIDELINE = 400. (F2)
MAR	498	501	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
RAW	TREATED	
<hr/>		
APR	493	478
JUN	495	500
AUG	502	507
SEP	496	503
OCT	485	490
NOV	468	487
DEC	478	503
<hr/>		
FLUORIDE (MG/L )		DET'N LIMIT = .01      GUIDELINE = 2.400 (A1)
MAR	.090	.100
APR	.120	.110
JUN	.070	.080
AUG	.120	.100
SEP	.100	.100
OCT	.180	.160
NOV	.080	.080
DEC	.120	.120
<hr/>		
HARDNESS (MG/L )		DET'N LIMIT = .500      GUIDELINE = 80-100 (A4)
MAR	263.000	264.500
APR	261.000	259.000
JUN	279.000	270.000
AUG	272.000	275.000
SEP	271.000	273.000
OCT	264.000	266.000
NOV	269.000	270.000
DEC	267.000	251.000
<hr/>		
MAGNESIUM (MG/L )		DET'N LIMIT = .050      GUIDELINE = 30. (F2)
MAR	17.700	17.800
APR	17.700	17.800
JUN	18.000	18.000
AUG	19.100	19.200
SEP	19.200	19.200
OCT	18.400	18.700
NOV	18.600	18.800
DEC	18.400	18.000
<hr/>		
SODIUM (MG/L )		DET'N LIMIT = .200      GUIDELINE = 200. (C3)
MAR	3.400	4.300
APR	3.400	4.400
JUN	2.800	4.000
AUG	3.800	5.400

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	
<hr/>			
SEP	4.000	5.400	
OCT	3.400	4.600	
NOV	3.400	4.200	
DEC	5.000	6.200	
<hr/>			
AMMONIUM TOTAL (MG/L)	)	DET'N LIMIT = 0.002	GUIDELINE = .05 (F2)
MAR	.016	.006 <T	
APR	.010	.004 <T	
JUN	.014	.006 <T	
AUG	BDL	.002 <T	
SEP	.014	.002 <T	
OCT	.006 <T	.004 <T	
NOV	.004 <T	.002 <T	
DEC	.008 <T	.065	
<hr/>			
NITRITE (MG/L)	)	DET'N LIMIT = 0.001	GUIDELINE = 1.000 (A1)
MAR	.013	BDL	
APR	.011	BDL	
JUN	.014	.004 <T	
AUG	.006	.008	
SEP	.012	.001 <T	
OCT	.010	.001 <T	
NOV	.009	BDL	
DEC	.023	.005	
<hr/>			
TOTAL NITRATES (MG/L)	)	DET'N LIMIT = .020	GUIDELINE = 10.000 (A1)
MAR	1.830	1.830	
APR	1.770	1.770	
JUN	1.770	1.780	
AUG	1.640	1.640	
SEP	1.650	1.600	
OCT	1.600	1.700	
NOV	1.830	1.850	
DEC	1.860	1.840	
<hr/>			
NITROGEN TOT KJELD (MG/L)	)	DET'N LIMIT = .020	GUIDELINE = N/A
MAR	.160	.140	
APR	.070 <T	.060 <T	
JUN	.110	.070 <T	
AUG	.070 <T	.050 <T	
SEP	.090 <T	.060 <T	
OCT	.180	.130	
NOV	.070 <T	.050 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	
<hr/>			
DEC	.100	.110	
<hr/>			
PH (DMSNLESS )	DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)
MAR	8.190	8.170	
APR	8.550	7.940	
JUN	8.310	8.330	
AUG	8.080	8.060	
SEP	8.110	8.120	
OCT	8.420	8.450	
NOV	8.320	8.360	
DEC	8.310	8.540	
<hr/>			
PHOSPHORUS FIL REACT (MG/L )	DET'N LIMIT = .5UG/L		GUIDELINE = N/A
MAR	.003	.003	
APR	.004	.011	
JUN	.004	.003	
AUG	.003	.004	
SEP	.003	.004	
OCT	.003	.004	
NOV	.002 <T	.004	
DEC	.002 <T	.001 <T	
<hr/>			
PHOSPHORUS TTL-UNFIL (MG/L )	DET'N LIMIT = .002		GUIDELINE = .40 (F2)
MAR	.002 <T	.002 <T	
APR	.007 <T	.006 <T	
JUN	.008 <T	.007 <T	
AUG	.003 <T	.002 <T	
SEP	!CR	!CR	
OCT	.008 <T	.008 <T	
NOV	.005 <T	.006 <T	
DEC	.005 <T	.005 <T	
<hr/>			
RESIDUE (TOTAL) (MG/L )	DET'N LIMIT = 1.		GUIDELINE = 500. (A3)
MAR	184	136	
APR	339	327	
JUN	322 CRO	325 CRO	
AUG	326 CRO	330 CRO	
SEP	322 CRO	327 CRO	
OCT	315 CRO	319 CRO	
NOV	304 CRO	317 CRO	
DEC	311 CRO	327 CRO	
<hr/>			
TURBIDITY (FTU )	DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW

TREATED

MAR	.660	.820
APR	1.090	.980
JUN	.830	.740
AUG	.650	.890
SEP	.600	.970
OCT	.700	.430
NOV	.320	.550
DEC	.380	.490

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	
<hr/>			
METALS			
ALUMINUM (MG/L )	DET'N LIMIT = .004		GUIDELINE = .10 (A4)
MAR	.018	.027	
APR	.006	.017	
JUN	BDL	BDL	
AUG	BDL	.004	
SEP	BDL	BDL	
OCT	.003	.006	
NOV	!SM	.003	
DEC	BDL	BDL	
<hr/>			
BARIUM (MG/L )	DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)
MAR	.067	.069	
APR	.070	.071	
JUN	.078	.079	
AUG	.075	.074	
SEP	.067	.067	
OCT	.057	.058	
NOV	!SM	.068	
DEC	.066	.067	
<hr/>			
BORON (MG/L )	DET'N LIMIT = 0.01		GUIDELINE = 5.000 (A1)
MAR	.020	.020	
APR	.010	.010	
JUN	.030	.030	
AUG	.020 <T	.010 <T	
SEP	.020 <T	.020 <T	
OCT	.020 <T	.010 <T	
NOV	!SM	.036 <T	
DEC	.042 <T	.033 <T	
<hr/>			
BERYLLIUM (MG/L )	DET'N LIMIT = 0.001		GUIDELINE = .0002 (H)
MAR	BDL	BDL	
APR	BDL	BDL	
JUN	BDL	BDL	
AUG	BDL	BDL	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	!SM	.001	
DEC	BDL	BDL	
<hr/>			
CADMIUM (UG/L )	DET'N LIMIT = 0.300		GUIDELINE = 5.000 (A1)
MAR	BDL	BDL	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW TREATED

APR	BDL	BDL
JUN	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	!SM	.300
DEC	BDL	BDL

COBALT (MG/L )

DET'N LIMIT = 0.001

GUIDELINE = 1.0 (H)

MAR	BDL	BDL
APR	BDL	BDL
JUN	BDL	BDL
AUG	BDL	BDL
SEP	.002	.002
OCT	.001	.002
NOV	!SM	.002
DEC	.002	.002

CHROMIUM (MG/L )

DET'N LIMIT = 0.001

GUIDELINE = .05 (A1)

MAR	BDL	BDL
APR	BDL	BDL
JUN	.250	BDL
AUG	.001	.002
SEP	.005	.006
OCT	.003	.003
NOV	!SM	.004
DEC	.004	.004

COPPER (MG/L )

DET'N LIMIT = .001

GUIDELINE = 1.0 (A3)

MAR	BDL	BDL
APR	BDL	.001
JUN	BDL	.020
AUG	BDL	.260
SEP	BDL	.064
OCT	BDL	BDL
NOV	!SM	.052
DEC	BDL	.066

IRON (MG/L )

DET'N LIMIT = .002

GUIDELINE = .300 (A3)

MAR	.100	.110
APR	.094	.100
JUN	.100	.110
AUG	.087	.094

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM	
	RAW	TREATED		
-----				
SEP	.075	.069		
OCT	.044	.096		
NOV	!SM	.097		
DEC	.082	.081		
-----				
MERCURY (UG/L )	DET'N LIMIT = 0.010		GUIDELINE = 1.000	(A1)
MAR	BDL	BDL		
APR	.010	BDL		
JUN	.010	.010		
AUG	.010	.010		
SEP	.010	.010		
OCT	BDL	BDL		
NOV	!SS	.010		
DEC	.020	.020		
-----				
MANGANESE (MG/L )	DET'N LIMIT = .001		GUIDELINE = .050	(A3)
MAR	.035	.035		
APR	.031	.032		
JUN	.029	.029		
AUG	.025	.024		
SEP	.027	.023		
OCT	.021	.021		
NOV	!SM	.021		
DEC	.022	.022		
-----				
MOLYBDENUM (MG/L )	DET'N LIMIT = 0.001		GUIDELINE = .50	(H)
MAR	BDL	BDL		
APR	BDL	BDL		
JUN	BDL	BDL		
AUG	BDL	BDL		
SEP	BDL	BDL		
OCT	BDL	BDL		
NOV	!SM	.001		
DEC	BDL	BDL		
-----				
NICKEL (MG/L )	DET'N LIMIT = 0.001		GUIDELINE = .05	(F3)
MAR	BDL	.002		
APR	BDL	BDL		
JUN	BDL	BDL		
AUG	BDL	BDL		
SEP	.001	.001		
OCT	.001	.001		
NOV	!SM	.003		



TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
RAW	TREATED	
<hr/>		
DEC	.001	.001
<hr/>		
LEAD (MG/L )	DET'N LIMIT = 0.003	
	GUIDELINE = .050 (A1)	
MAR	BDL	BDL
APR	BDL	BDL
JUN	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	!SM	.003
DEC	BDL	BDL
<hr/>		
STRONTIUM (MG/L )	DET'N LIMIT = .001	
	GUIDELINE = 2.00 (H)	
MAR	.140	.150
APR	.150	.150
JUN	.140	.150
AUG	.130	.130
SEP	.120	.130
OCT	.120	.130
NOV	!SM	.130
DEC	.170	.170
<hr/>		
URANIUM (UG/L )	DET'N LIMIT = .02	
	GUIDELINE = 20. (A2)	
MAR	.640	.650
APR	.720	.700
JUN	.680	.680
AUG	.790	.800
SEP	.790	.800
OCT	.910	.910
NOV	!SM	.810
DEC	.600	.600
<hr/>		
VANADIUM (MG/L )	DET'N LIMIT = .001	
	GUIDELINE = .10 (H)	
MAR	BDL	BDL
APR	BDL	BDL
JUN	BDL	BDL
AUG	BDL	BDL
SEP	.001	.001
OCT	BDL	BDL
NOV	!SM	.001
DEC	BDL	BDL
<hr/>		
ZINC (MG/L )	DET'N LIMIT = .001	
	GUIDELINE = 5.00 (A3)	

TABLE 5

. DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW

TREATED

MAR	BDL	.002
APR	.001	.010
JUN	.002	.002
AUG	.002	.005
SEP	.002	.005
OCT	BDL	BDL
NOV	!SM	.005
DEC	.002	.009

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW

TREATED

## CHLOROAROMATICS

HEXACHLOROETHANE (NG/L )

DET'N LIMIT = 1.000

GUIDELINE = 1900. (D4)

MAR	BDL	BDL
APR	BDL	4.000 <T
JUN	6.000 <T	BDL
AUG	!QU	!QU
SEP	!LA	BDL
OCT	BDL	BDL
NOV	BDL	BDL
DEC	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM	
	RAW	TREATED		
-----				
PESTICIDES & PCB				
ALPHA BHC (NG/L )			DET'N LIMIT = 1.000	GUIDELINE = 700. (G)
MAR	BDL	BDL		
APR	BDL	BDL		
JUN	2.000 <T	BDL		
AUG	!QU	!QU		
SEP	!LA	BDL		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	BDL		
-----				
BETA BHC (NG/L )			DET'N LIMIT = 1.000	GUIDELINE = 300. (G)
MAR	BDL	1.000 <T		
APR	BDL	BDL		
JUN	BDL	BDL		
AUG	!QU	!QU		
SEP	!LA	BDL		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	BDL		
-----				
PPDDE (NG/L )			DET'N LIMIT = 1.000	GUIDELINE = 30000. (A1)
MAR	BDL	2.000 <T		
APR	BDL	BDL		
JUN	BDL	BDL		
AUG	!QU	!QU		
SEP	!LA	BDL		
OCT	BDL	BDL		
NOV	BDL	BDL		
DEC	BDL	BDL		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW

TREATED

## PHENOLICS

PHENOL (UG/L)

DET'N LIMIT = 0.2

GUIDELINE = 2.00 (A3)

MAR	.200 <T	.200 <T
APR	1.800 CIC	BDL
JUN	1.000	.200 <T
AUG	!NR	BDL
SEP	!NR	!NR
OCT	BDL	BDL
NOV	BDL	!NR
DEC	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW TREATED

## VOLATILES

TOLUENE (UG/L )		DET'N LIMIT = 0	GUIDELINE = 100.0 (G)
MAR	BDL	BDL	
APR	BDL	BDL	
JUN	BDL	BDL	
AUG	BDL	.200 <T	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	!NR	.050 UCS	
DEC	BDL	BDL	

ETHYLBENZENE (UG/L )		DET'N LIMIT = 0	GUIDELINE = 3400. (D3)
MAR	BDL	BDL	
APR	BDL	BDL	
JUN	BDL	BDL	
AUG	BDL	.150 <T	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	!NR	.050 <T	
DEC	BDL	BDL	

1,1 DICHLOROETHYLENE (UG/L )		DET'N LIMIT = 0	GUIDELINE = 7.0 (D1)
MAR	BDL	BDL	
APR	BDL	BDL	
JUN	BDL	.000 SPS	
AUG	BDL	BDL	
SEP	BDL	BDL	
OCT	BDL	BDL	
NOV	!NR	BDL	
DEC	BDL	BDL	

CHLOROFORM (UG/L )		DET'N LIMIT = 0	GUIDELINE = 350.0 (A1+)
MAR	BDL	23.000	
APR	BDL	21.000	
JUN	BDL	20.600	
AUG	BDL	25.600	
SEP	BDL	28.100	
OCT	BDL	34.400	
NOV	!NR	16.200	
DEC	BDL	28.900	

111, TRICHLOROETHANE (UG/L )		DET'N LIMIT = 0	GUIDELINE = 200. (D1)
MAR	BDL	1.000	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## WATER TREATMENT PLANT

## DISTRIBUTION SYSTEM

RAW TREATED

APR	BDL	.400 <T
JUN	BDL	BDL
AUG	BDL	BDL
SEP	BDL	BDL
OCT	BDL	BDL
NOV	!NR	BDL
DEC	BDL	BDL

DICHLOROBROMOMETHANE (UG/L )

DET'N LIMIT = 0

GUIDELINE = 350.0 (A1+)

MAR	BDL	8.000
APR	BDL	6.000
JUN	BDL	7.100
AUG	BDL	9.700
SEP	BDL	8.500
OCT	BDL	8.400
NOV	!NR	7.000
DEC	BDL	10.400

CHLORODIBROMOMETHANE (UG/L )

DET'N LIMIT = 0

GUIDELINE = 350.0 (A1+)

MAR	BDL	2.000
APR	BDL	1.000
JUN	BDL	2.000
AUG	BDL	2.700
SEP	BDL	2.000
OCT	BDL	.900 <T
NOV	!NR	2.100
DEC	BDL	2.700

TOTL TRIHALOMETHANES (UG/L )

DET'N LIMIT = 0

GUIDELINE = 350.0 (A1)

MAR	BDL	33.000
APR	BDL	28.000
JUN	BDL	29.700
AUG	BDL	38.000
SEP	BDL	38.600
OCT	BDL	43.700
NOV	!NR	25.300
DEC	BDL	42.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
RAW	TREATED	SITE 1		SITE 2		
		STANDING	FREE FLOW	STANDING	FREE FLOW	
BACTERIOLOGICAL						
AEROMONAS SP (0=ABSENT )		DET'N LIMIT = N/A		GUIDELINE = 0		(A1)
MAY	.	.	.	0	.	.
E. COLI (P/A) (0=ABSENT )		DET'N LIMIT = N/A		GUIDELINE =		
MAY	.	.	.	0	.	.
FECAL COLIFORM MF (CT/100ML )		DET'N LIMIT = 0		GUIDELINE = 0		(A1)
MAR	159	.	.	.	.	.
APR	0	.	.	.	.	.
JUN	0	.	.	.	.	.
JUL	4	.	.	.	.	.
AUG	150 >	.	.	.	.	.
OCT	0	.	.	.	.	.
NOV	24	.	.	.	.	.
DEC	BDL	.	.	.	.	.
FECAL COLIFORM (0=ABSENT )		DET'N LIMIT = N/A		GUIDELINE = 0		(A1)
MAY	.	.	.	0	.	.
STANDRD PLATE CNT MF (CT/ML )		DET'N LIMIT = 0		GUIDELINE = 500/ML		(A1)
MAR	210	0	.	2	.	8
APR	34	2	.	2	.	24
MAY	.	3	.	26	.	17
JUN	950	9	.	2	.	22
JUL	2400 >	2400 >	.	2400 >	.	.
AUG	10P	130	.	260	.	.
OCT	5	0	.	15	.	2
NOV	10P	0	.	0	.	.
DEC	97	0	.	0	.	0
P/A BOTTLE (0=ABSENT )		DET'N LIMIT = 0		GUIDELINE = 0		(A1*)
MAR	.	0	.	0	.	0
APR	.	0	.	0	.	0
MAY	.	0	.	1	.	0
JUN	.	0	.	0	.	0
JUL	.	0	.	0	.	.
AUG	.	0	.	0	.	.
OCT	.	0	.	0	.	0
NOV	.	0	.	0	.	.
DEC	.	0	.	0	.	0



TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
-----						
STAPH AUREUS (0=ABSENT )			DET'N LIMIT = N/A		GUIDELINE = 0 (A1)	
MAY	.	.	.	0	.	.
-----						
COLIFORM (0=ABSENT )			DET'N LIMIT = N/A		GUIDELINE = 0 (A1)	
MAY	.	.	.	0	.	.
-----						
TOTAL COLIFORM MF (CT/100ML )			DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)	
MAR	3200	0	.	0	.	0
APR	0	0	.	0	.	0
MAY	.	0	.	0	.	0
JUN	289 A3C	1	.	0	.	0
JUL	4 A3C	0	.	0	.	.
AUG	100 A3C	0	.	0	.	.
OCT	0	0	.	0	.	0
NOV	64 A3C	0	.	0	.	.
DEC	14	0	.	0	.	0
-----						
T COLIFORM BCKGRD MF (CT/100ML )			DET'N LIMIT = 0		GUIDELINE = N/A	
MAR	9100	1	.	0	.	0
APR	38	0	.	0	.	0
MAY	.	0	.	0	.	0
JUN	2400 >	1	.	0	.	2
JUL	20000	2400 >	.	0	.	.
AUG	60000	2400 >	.	0	.	.
OCT	0	0	.	0	.	0
NOV	4100	0	.	0	.	.
DEC	56	0	.	0	.	0

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
-----						
CHEMISTRY (FLD)						
FLD CHLORINE (COMB) (MG/L )			DET'N LIMIT = N/A		GUIDELINE =	N/A
MAR	.150	1.200	.100	.600	.100	.100
APR	.	.250	.300	.800	.	.100
MAY	.	.300	.	.100	.	.100
JUN	.	.250	.300	.800	.150	.150
JUL	.	1.100	.300	.300	.	.
AUG	.	1.100	.100	.500	.	.
SEP	.	.300	.300	.400	.100	.
OCT	.	1.300	.100	.900	.	.100
NOV	.	.300	.	.100	.	.
DEC	.	.500	.300	.200	.	.100
-----						
FLD CHLORINE FREE (MG/L )			DET'N LIMIT = N/A		GUIDELINE =	N/A
MAR	.100	1.000	.100	.700	.100	.100
APR	.	.950	.300	.700	.100	.100
MAY	.	.900	.300	.800	.100	.100
JUN	.	.950	.100	.700	.100	.100
JUL	.	.900	.300	.600	.	.
AUG	.	.900	.100	.300	.	.
SEP	.200	.900	.100	.600	.100	.100
OCT	.	1.200	.100	.800	.100	.100
NOV	.	.900	.100	.600	.100	.100
DEC	.	.600	.100	.500	.	.100
-----						
TOTAL CHLORINE (MG/L )			DET'N LIMIT = N/A		GUIDELINE =	N/A
MAR	.150	1.200	.100	.600	.100	.100
APR	.	1.200	.	.	.100	.200
MAY	.	1.200	.300	.900	.100	.200
JUN	.	1.200	.200	.100	.050	.050
JUL	.	.200	.	.900	.	.
AUG	.	.200	.	.200	.	.
SEP	.200	1.200	.200	.200	.	.
OCT	.	.100	.	.100	.100	.200
NOV	.	1.200	.100	.700	.100	.100
DEC	.	1.100	.400	.700	.100	.200
-----						
FLD PH (DMSNLESS )			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5 (A4)	
MAR	7.900	7.700	7.800	7.500	7.800	7.700
APR	8.300	7.900	7.800	7.600	7.800	7.700
MAY	8.200	7.900	7.700	7.600	8.000	7.800
JUN	8.100	7.900	7.700	7.600	8.000	7.900
JUL	7.900	7.900	7.400	7.600	.	.
AUG	7.600	7.700	7.700	7.600	.	.

Samples gathered from the raw, treated and distribution sampling sites are analyzed for approximately 160 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. The parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments parameters may be measured for in a "scan" producing some results for parameters that are not on the DWSP priority list but which may be of interest. The majority of the parameters are measured on a routine basis however, those that are technically more difficult and/or costly to analyse for are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change notation will be made and intercomparison data documented.

#### PARAMETER REFERENCE INFORMATION

The fourth major input to DWSP is Parameter Reference Information

This is a catalogue of information for each substance analysed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database.

An example is shown in fig. 2.

A written copy (hard version) of the Parameter Reference Information will be available in early 1988 and is a new and sophisticated enhancement to the DWSP.

#### PROGRAM OUTPUTS

There are four major program outputs, Query, Action Alert, Report Generation and the Annual Report.

#### QUERY

All DWSP information is easily accessed through the Query function, therefore anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOE offices is being developed by the DWSP group.

#### ACTION ALERTS

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	8.000	7.900	7.600	7.800	7.600	7.700
OCT	8.000	7.700	7.800	7.500	7.600	7.700
NOV	8.100	7.700	7.500	7.500	7.800	7.800
DEC	7.900	7.700	7.600	7.600	7.700	7.600
-----						
TEMPERATURE (DEG.C )	DET'N LIMIT = N/A		GUIDELINE = N/A			
MAR	5.200	5.900	17.000	6.500	11.000	5.500
APR	9.900	11.000	16.000	11.000	13.000	9.000
MAY	11.700	12.000	18.000	13.500	17.000	13.000
JUN	19.900	19.900	23.000	19.000	21.100	18.000
JUL	20.000	21.100	25.000	23.000	.	.
AUG	18.500	20.500	27.000	23.000	.	.
SEP	18.900	19.000	22.000	19.000	21.000	19.000
OCT	12.000	10.000	19.000	14.000	16.000	15.000
NOV	6.000	6.000	17.000	10.000	.	.
DEC	3.300	4.400	18.000	9.500	.	.
-----						
FLD TURBIDITY (FTU )	DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)			
MAR	5.700	.140	1.090	.400	.450	.430
APR	4.500	.090	.720	.330	.390	.310
MAY	4.300	.070	.420	.130	.350	.200
JUN	3.800	.180	.490	.290	.470	.290
JUL	8.300	.140	.360	.190	.	.
AUG	4.200	.540	.530	.450	.	.
SEP	12.400	.100	1.020	.300	.540	.420
OCT	.920	.110	.810	.390	.590	.550
NOV	39.000	.080	.490	.240	.380	.280

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
-----						
CHEMISTRY (LAB)						
ALKALINITY (MG/L )		DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)		
MAR	104.700	101.700	135.600	153.300	138.900	137.400
APR	112.600	106.900	138.200	133.400	132.300	137.700
MAY	110.100	97.900	98.300	97.900	99.200	99.000
JUN	101.700	98.800	101.500	112.500	112.100	105.500
JUL	104.300	98.700	96.800	95.600	.	.
AUG	104.300	97.200	97.300	114.500	.	.
SEP	102.700	97.400	118.500	126.500	146.100	144.300
OCT	99.700	100.400	143.700	130.000	131.800	136.900
NOV	103.200	99.800	128.800	126.800	ISM	ISM
DEC	101.900	98.500	142.800	137.200	131.600	132.200
-----						
CALCIUM (MG/L )		DET'N LIMIT = .100		GUIDELINE = 100. (F2)		
MAR	38.100	38.500	49.800	59.500	53.600	53.400
APR	39.700	40.000	50.500	49.700	47.000	50.600
MAY	38.400	38.000	39.000	38.400	39.000	37.400
JUN	40.000	40.400	42.800	45.000	46.800	43.400
JUL	38.000	38.000	40.000	38.400	.	.
AUG	37.800	38.200	38.800	45.600	.	.
SEP	36.400	36.800	47.400	49.200	57.600	55.800
OCT	40.000	40.200	56.400	49.400	51.600	53.200
NOV	39.400	39.400	49.800	50.400	ISM	ISM
DEC	36.700	37.200	55.200	52.100	49.900	50.400
-----						
CHLORIDE (MG/L )		DET'N LIMIT = .200		GUIDELINE = 250.0 (A3)		
MAR	15.500	19.000	17.000	12.500	16.000	15.500
APR	17.500	21.000	17.000	17.500	17.500	16.500
MAY	15.000	18.500	19.000	18.000	18.000	18.500
JUN	15.500	18.500	19.000	17.500	17.500	18.000
JUL	15.500	18.500	20.500	19.500	.	.
AUG	14.500	18.500	18.500	16.000	.	.
SEP	14.500	18.500	17.500	15.500	13.500	13.000
OCT	18.700	18.800	14.300	15.400	15.400	14.600
NOV	14.500	17.300	14.400	14.300	ISM	ISM
DEC	14.500	18.000	14.500	14.700	15.300	15.300
-----						
COLOUR (TCU )		DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)		
MAR	3.000	1.500 <T	1.000 <T	2.000 <T	3.000	3.000
APR	4.000	1.500 <T	2.000 <T	1.500 <T	3.000	1.000 <T
MAY	BDL	.500 <T	.500 <T	.500 <T	1.000 <T	1.000 <T
JUN	1.000 <T	BDL	.500 <T	.500 <T	1.000 <T	1.000 <T
JUL	3.000	1.500 <T	2.000 <T	2.000 <T	.	.
AUG	1.500 <T	.500 <T	1.000 <T	1.000 <T	.	.

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	1.500 <T	BDL	.500 <T	.500 <T	1.500 <T	1.500 <T
OCT	4.000	BDL	2.000 <T	.500 <T	1.000 <T	2.000 <T
NOV	34.500	4.000	4.500	4.000	!SM	!SM
DEC	1.500 <T	BDL	1.500 <T	1.500 <T	1.500 <T	2.000 <T
<hr/>						
CONDUCTIVITY (UMHO/CM )		DET'N LIMIT = 1		GUIDELINE = 400. (F2)		
MAR	302	312	384	418	393	388
APR	321	328	380	371	363	379
MAY	306	302	309	286	293	304
JUN	292	299	311	323	329	313
JUL	294	297	307	299	.	.
AUG	292	297	305	337	.	.
SEP	286	292	356	358	397	393
OCT	299	300	394	361	363	373
NOV	289	293	358	349	!SM	!SM
DEC	289	296	398	381	369	369
<hr/>						
FLUORIDE (MG/L )		DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)		
MAR	.160	.120	.130	.110	.120	.120
APR	.150	.140	.130	.130	.130	.120
MAY	.140	.130	.130	.120	.120	.120
JUN	.140	.130	.150	.130	.160	.150
JUL	.130	.110	.100	.100	.	.
AUG	.120	.100	.120	.120	.	.
SEP	.080	.100	.100	.100	.080	.080
OCT	.120	.120	.120	.120	.100	.100
NOV	.120	.100	.080	.080	!SM	!SM
DEC	.100	.100	.100	.100	.100	.100
<hr/>						
HARDNESS (MG/L )		DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)		
MAR	129.500	131.500	173.000	204.500	183.000	183.000
APR	137.500	138.500	175.000	172.000	162.000	175.000
MAY	131.000	130.000	133.000	131.000	132.000	127.000
JUN	134.000	136.000	143.000	151.000	156.000	145.000
JUL	131.000	130.000	135.000	131.000	.	.
AUG	132.000	133.000	136.000	161.000	.	.
SEP	128.000	129.000	165.000	172.000	200.000	195.000
OCT	136.000	137.000	195.000	170.000	178.000	184.000
NOV	135.000	135.000	173.000	175.000	!SM	!SM
DEC	126.000	128.000	191.000	181.000	173.000	175.000
<hr/>						
MAGNESIUM (MG/L )		DET'N LIMIT = .050		GUIDELINE = 30. (F2)		
MAR	8.400	8.600	11.800	13.600	12.000	12.100

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	9.300	9.400	11.900	11.600	10.900	11.800
MAY	8.500	8.600	8.600	8.500	8.400	8.100
JUN	8.200	8.400	8.900	9.400	9.600	8.800
JUL	8.600	8.500	8.600	8.600	.	.
AUG	9.100	9.200	9.500	11.400	.	.
SEP	9.000	9.000	11.400	11.900	13.600	13.500
OCT	8.700	8.800	13.100	11.400	12.000	12.300
NOV	8.800	8.800	11.700	11.900	!SM	!SM
DEC	8.350	8.450	12.900	12.400	11.800	11.900
-----						
SODIUM (MG/L )			DET'N LIMIT = .200		GUIDELINE = 200. (C3)	
MAR	8.900	8.900	8.600	6.500	7.400	7.300
APR	9.300	9.200	7.800	7.900	8.100	7.500
MAY	9.400	10.600	9.800	11.000	9.600	9.000
JUN	8.200	8.000	8.600	7.800	7.600	7.600
JUL	8.200	8.400	8.200	8.000	.	.
AUG	8.800	8.800	8.800	8.200	.	.
SEP	8.800	8.800	8.600	7.800	7.400	7.200
OCT	8.000	8.200	6.400	6.800	7.200	6.600
NOV	8.400	8.400	7.000	7.200	!SM	!SM
DEC	8.500	8.700	7.900	7.800	7.800	8.100
-----						
AMMONIUM TOTAL (MG/L )			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)	
MAR	.020	.004 <T	.030	.006 <T	.012	.008 <T
APR	.002 <T	.012	.090	.002 <T	.018	.002 <T
MAY	.006 <T	.006 <T	.098	.004 <T	.016	.012
JUN	.028	.012	.144 RVU	.010	.058	.010
JUL	.022	.006 <T	.232	.008 <T	.	.
AUG	.038	.002 <T	.158	.004 <T	.	.
SEP	.024	.010	.156	.012	.030	.012
OCT	.008 <T	.008 <T	.142	.004 <T	.026	.006 <T
NOV	BDL	BDL	.126	.002 <T	!SM	!SM
DEC	.014	.006 <T	.134	BDL	.030	BDL
-----						
NITRITE (MG/L )			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
MAR	.004 <T	BDL	.003 <T	BDL	.003 <T	.002 <T
APR	.002 <T	BDL	.002 <T	.001 <T	BDL	BDL
MAY	.055	.002 <T	.004 <T	.002 <T	.001 <T	.004 <T
JUN	.022	.004 <T	.004 <T	.003 <T	.004 <T	.004 <T
JUL	.023	BDL	BDL	BDL	.	.
AUG	.003 <T	.002 <T	.003 <T	.001 <T	.	.
SEP	.004 <T	.003 <T	.004 <T	.002 <T	.003 <T	.003 <T
OCT	.001 <T	BDL	.001 <T	.001 <T	.002 <T	.001 <T
NOV	.003 <T	.003 <T	.003 <T	.001 <T	!SM	!SM



TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
DEC	.001 <T	.001 <T	.002 <T	BDL	.001 <T	BDL
TOTAL NITRATES (MG/L )	DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)			
MAR	.280	.350	.890	1.130	.945	.915
APR	.525	.560	1.120	.850	.760	.895
MAY	.250	.220	.790	.215	.245	.230
JUN	.195	.180	.615	.355	.535	.265
JUL	.165	.130	.520	.130	.	.
AUG	.215	.175	.550	.410	.	.
SEP	.120	.105	1.550	.590	.840	.815
OCT	.215	.290	1.480	.655	.680	.725
NOV	.220	.175	1.110	.640	!SM	!SM
DEC	.155	.130	1.280	.780	.705	.660
NITROGEN TOT KJELD (MG/L )	DET'N LIMIT = .020		GUIDELINE = N/A			
MAR	.170	.070 <T	.200	.030 <T	.110	.090 <T
APR	.300	.180	.300	.160	.260	.150
MAY	.150 UAL	.120	.290	.100	.170	.120
JUN	.140	.230	.140 RVU	.040 <T	.050 <T	.050 <T
JUL	.210	.150	.430	.130	.	.
AUG	.140	.140	.370	.120	.	.
SEP	.210	.160	.440	.130	.250	.120
OCT	.180	.170	.530	.160	.270	.170
NOV	.700	.160	.300	.150	!SM	!SM
DEC	.210	.130	.300	.130	.220	.120
PH (DMSNLESS )	DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)			
MAR	8.260	8.110	8.210	8.170	8.140	8.170
APR	8.460	8.450	8.490	8.470	8.470	8.500
MAY	8.470	8.180	8.170	8.210	8.210	8.180
JUN	8.460	8.330	8.260	8.310	8.300	8.280
JUL	8.260	8.210	8.130	8.150	.	.
AUG	8.140	8.150	8.040	8.090	.	.
SEP	8.330	8.140	8.130	8.160	8.140	8.130
OCT	8.260	8.300	8.350	8.310	8.300	8.350
NOV	8.140	8.210	8.400	8.360	!SM	!SM
DEC	8.360	8.370	8.470	8.500	8.450	8.470
PHOSPHORUS FIL REACT (MG/L )	DET'N LIMIT = .5UG/L		GUIDELINE = N/A			
MAR	.001 <T	BDL	.	.	.	.
APR	.001 <T	.000 <T	.	.	.	.
MAY	.004	.001 <T	.	.	.	.
JUN	.004	BDL	.	.	.	.

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
JUL	.004	BDL	.	.	.	.
AUG	.007	.000 <T	.	.	.	.
SEP	.001 <T	.000 <T	.	.	.	.
OCT	.000 <T	.000 <T	.	.	.	.
NOV	.002 <T	BDL	.	.	.	.
DEC	BDL	BDL	.	.	.	.
-----						
PHOSPHORUS TTL-UNFIL (MG/L )                      DET'N LIMIT = .002                      GUIDELINE = .40                      (F2)						
MAR	.011	BDL	.	.	.	.
APR	.023	.010	.	.	.	.
MAY	.009 UAL	.003 <T	.	.	.	.
JUN	.004 <T	.003 <T	.	.	.	.
JUL	.019	.005 <T	.	.	.	.
AUG	BDL	BDL	.	.	.	.
SEP	.003 <T	BDL	.	.	.	.
OCT	.003 <T	.002 <T	.	.	.	.
NOV	.410	.002 <T	.	.	.	.
DEC	.029	BDL	.	.	.	.
-----						
RESIDUE (TOTAL) (MG/L )                      DET'N LIMIT = 1.                      GUIDELINE = 500.                      (A3)						
MAR	176	203 CRO	250 CRO	!LA	255 CRO	252 CRO
APR	209 CRO	213 CRO	247 CRO	241 CRO	236 CRO	25 CRO
MAY	199 CRO	196 CRO	201 CRO	186 CRO	190 CRO	198 CRO
JUN	190 CRO	194 CRO	202 CRO	210 CRO	214 CRO	203 CRO
JUL	191 CRO	193 CRO	200 CRO	194 CRO	.	.
AUG	190 CRO	193 CRO	198 CRO	219 CRO	.	.
SEP	48 CRO	78 CRO	83 CRO	82 CRO	82 CRO	83 CRO
OCT	194 CRO	195 CRO	256 CRO	235 CRO	236 CRO	242 CRO
NOV	188 CRO	190 CRO	233 CRO	227 CRO	!SM	!SM
DEC	188 CRO	192 CRO	259 CRO	248 CRO	240 CRO	240 CRO
-----						
TURBIDITY (FTU )                      DET'N LIMIT = .02                      GUIDELINE = 1.00 (A1)						
MAR	4.100	.080	.960	.320	.540	.340
APR	.470	.110	.740	.350	.660	.280
MAY	1.920	.130	.500	.080	.350	.170
JUN	1.600	.150 <T	.390	.130 <T	.460	.270
JUL	6.100	.210	.420	.530	.	.
AUG	2.500	.050	.500	.210	.	.
SEP	19.000	.090 <T	.900	.220	.400	.350
OCT	4.100	.160	.110	.400	.150	.130
NOV	1.000	.180	.580	.190	!SM	!SM
DEC	1.000	.080 <T	.620	.260	.180	.210

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT			DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
-----						
METALS						
ALUMINUM (MG/L )	DET'N LIMIT = .004		GUIDELINE = .10		(A4)	
MAR	.110	.077	.056	.058	.066	.052
APR	.140	.150	.095	.110	.070	.067
MAY	.055	.150	.130	.150	.120	.110
JUN	.078	.200	.170	.180	.150	.160
JUL	.170	.230	.240	.260	.	.
AUG	.086	.230	.250	.270	.	.
SEP	.780	.200	.160	!IS	.110	.100
OCT	.097	.100	.076	.059	.058	.055
NOV	4.600	.095	.067	.051	!SM	!SM
DEC	.360	.066	.059	.057	.046	.044
-----						
BARIUM (MG/L )	DET'N LIMIT = 0.001		GUIDELINE = 1.000		(A1)	
MAR	.021	.019	.033	.044	.040	.034
APR	.021	.020	.038	.034	.036	.030
MAY	.020	.019	.019	.018	.022	.020
JUN	.023	.020	.023	.024	.030	.026
JUL	.020	.019	.020	.019	.	.
AUG	.019	.019	.022	.021	.	.
SEP	.020	.017	.029	!IS	.037	.037
OCT	.016	.017	.034	.031	.028	.028
NOV	.045	.017	.033	.030	!SM	!SM
DEC	.019	.017	.037	.031	.029	.029
-----						
BORON (MG/L )	DET'N LIMIT = 0.01		GUIDELINE = 5.000		(A1)	
MAR	.030	.030	.040	.040	.020	.030
APR	.030	.050	.060	.030	.030	.040
MAY	.030 <T	.030 <T	.030 <T	.020 <T	.040 <T	.030 <T
JUN	.010	.040	.010	.030	.020	.040
JUL	.020 <T	.030 <T	.030 <T	.020 <T	.	.
AUG	.020 <T	.010 <T	.020 <T	.020 <T	.	.
SEP	.030 <T	.030 <T	.050 <T	!IS	.030 <T	.020 <T
OCT	.010 <T	.010 <T	.030 <T	BDL	.020 <T	.010 <T
NOV	.044 <T	.040 <T	.034 <T	.033 <T	!SM	!SM
DEC	.020 <T	.026 <T	.042 <T	.013 <T	.021 <T	.021 <T
-----						
CADMIUM (UG/L )	DET'N LIMIT = 0.300		GUIDELINE = 5.000		(A1)	
MAR	BDL	BDL	.300	BDL	BDL	BDL
APR	BDL	BDL	.300	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	.400	BDL	.	.
AUG	BDL	BDL	.300	BDL	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	BDL	BDL	.500	!!S	.300	BDL
OCT	BDL	BDL	BDL	3.000	BDL	BDL
NOV	BDL	BDL	BDL	BDL	!SM	!SM
DEC	BDL	BDL	1.400	BDL	BDL	BDL
-----						
COBALT (MG/L )						
			DET'N LIMIT = 0.001		GUIDELINE = 1.0 (H)	
MAR	BDL	.002	.001	.001	.001	BDL
APR	BDL	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	BDL	BDL	.	.
AUG	BDL	BDL	BDL	BDL	.	.
SEP	BDL	BDL	.002	!!S	.001	BDL
OCT	BDL	BDL	.001	.001	.001	BDL
NOV	.006	BDL	BDL	BDL	!SM	!SM
DEC	BDL	BDL	.001	BDL	BDL	BDL
-----						
CHROMIUM (MG/L )						
			DET'N LIMIT = 0.001		GUIDELINE = .05 (A1)	
MAR	BDL	BDL	BDL	BDL	BDL	BDL
APR	BDL	BDL	.001	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	.008	.002	.	.
AUG	.015	.001	.013	.003	.	.
SEP	.002	.001	.016	!!S	.002	.002
OCT	.003	.004	.002	.003	.002	.001
NOV	.020	.001	.005	.004	!SM	!SM
DEC	.002	.001	.004	.007	.002	.002
-----						
COPPER (MG/L )						
			DET'N LIMIT = .001		GUIDELINE = 1.0 (A3)	
MAR	.001	BDL	.460	.011	.033	.005
APR	.001	BDL	.100	.005	.027	.002
MAY	.002	.001	.051	.003	.020	.003
JUN	.002	.001	.054	.005	.019	.003
JUL	.001	BDL	.061	.004	.	.
AUG	.001	.001	.061	.004	.	.
SEP	.002	.002	.055	!!S	.019	.004
OCT	BDL	BDL	.051	.004	.018	.003
NOV	.011	.001	.048	.003	!SM	!SM
DEC	.001	BDL	.071	.004	.003	.003
-----						
IRON (MG/L )						
			DET'N LIMIT = .002		GUIDELINE = .300 (A3)	
MAR	.092	BDL	.070	.086	.100	.140

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	.080	.009	.120	.030	.083	.069
MAY	.095	BDL	.041	BDL	.076	.074
JUN	.110	.005	.021	.012	.054	.073
JUL	.100	BDL	.032	.005	.	.
AUG	.120	.007	.063	.011	.	.
SEP	.800	BDL	.100	!IS	.037	.042
OCT	.260	.051	.088	.072	.065	.038
NOV	4.200	.010	.079	.019	!SM	!SM
DEC	.310	.004	.078	.021	.071	.071
-----						
MERCURY (UG/L)	DET'N LIMIT = 0.010		GUIDELINE = 1.000 (A1)			
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	.010	.	BDL
MAY	BDL	BDL	.	.010	.	BDL
JUN	.010	.010	.	.010	.	.010
JUL	.010	.010	.	.010	.	.
AUG	.010	.010	.	.020	.	.
SEP	BDL	BDL	.	.010	.	BDL
OCT	.010	.010	.	.020	.	.010
NOV	.010	.010	.	.010	.	!SS
DEC	.010	BDL	.	.020	.	.010
-----						
MANGANESE (MG/L)	DET'N LIMIT = .001		GUIDELINE = .050 (A3)			
MAR	.004	BDL	.005	.004	.007	.009
APR	.003	BDL	.009	.004	.007	.007
MAY	.004	BDL	.003	BDL	.008	.008
JUN	.005	BDL	.002	.001	.005	.007
JUL	.006	BDL	.002	.001	.	.
AUG	.007	.001	.004	.001	.	.
SEP	.037	.001	.008	!IS	.009	.009
OCT	.004	BDL	.006	.003	.006	.007
NOV	.330	.001	.006	.002	!SM	!SM
DEC	.020	BDL	.009	.003	.009	.009
-----						
MOLYBDENUM (MG/L)	DET'N LIMIT = 0.001		GUIDELINE = .50 (H)			
MAR	BDL	.001	BDL	BDL	BDL	BDL
APR	.001	.001	BDL	.001	.001	.001
MAY	BDL	.001	.001	.001	.001	.001
JUN	.001	.001	.001	.001	BDL	BDL
JUL	BDL	.001	BDL	BDL	.	.
AUG	BDL	BDL	.001	.001	.	.
SEP	BDL	.002	BDL	!IS	.001	BDL
OCT	BDL	.001	BDL	.001	BDL	BDL
NOV	BDL	BDL	.001	BDL	!SM	!SM

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
DEC	BDL	.001	BDL	.001	BDL	.001
NICKEL (MG/L )	DET'N LIMIT = 0.001		GUIDELINE = .05 (F3)			
MAR	BDL	BDL	.002	BDL	.002	BDL
APR	BDL	BDL	.002	BDL	BDL	BDL
MAY	BDL	BDL	.002	BDL	.006	BDL
JUN	BDL	BDL	BDL	BDL	.073	BDL
JUL	BDL	BDL	.050	BDL	.	.
AUG	.002	BDL	.026	BDL	.	.
SEP	.002	.001	.440	! IS	.017	.001
OCT	.002	.001	.095	BDL	.018	BDL
NOV	.009	.001	.013	.002	! SM	! SM
DEC	.002	.001	.080	.002	.002	.001
LEAD (MG/L )	DET'N LIMIT = 0.003		GUIDELINE = .050 (A1)			
MAR	BDL	.014	.014	.008	.008	.005
APR	BDL	BDL	.008	BDL	BDL	BDL
MAY	BDL	BDL	.006	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	.009	BDL	.	.
AUG	BDL	BDL	.009	BDL	.	.
SEP	BDL	BDL	.010	! IS	.004	BDL
OCT	BDL	BDL	.006	BDL	BDL	BDL
NOV	.013	BDL	.029	BDL	! SM	! SM
DEC	BDL	BDL	.017	BDL	BDL	BDL
STRONTIUM (MG/L )	DET'N LIMIT = .001		GUIDELINE = 2.00 (H)			
MAR	.160	.150	.160	.150	.170	.150
APR	.190	.190	.170	.180	.170	.160
MAY	.150	.150	.150	.150	.150	.150
JUN	.160	.150	.150	.160	.150	.150
JUL	.150	.150	.150	.140	.	.
AUG	.140	.140	.130	.130	.	.
SEP	.140	.130	.140	! IS	.140	.130
OCT	.130	.140	.140	.140	.130	.130
NOV	.200	.130	.130	.130	! SM	! SM
DEC	.150	.140	.160	.150	.150	.150
URANIUM (UG/L )	DET'N LIMIT = .02		GUIDELINE = 20. (A2)			
MAR	.310	BDL	BDL	.430	.340	.330
APR	.410	.240	.340	.390	.360	.240
MAY	! IS	.180	.160	.170	.180	.150
JUN	.300	.280	.250	.320	.310	.300

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
JUL	.410	.270	.200	.200	.	.
AUG	.340	.170	.210	.270	.	.
SEP	.420	.140	.280	.330	.370	.390
OCT	.170	.160	.430	.470	.410	.430
NOV	.550	.180	.320	.350	! SM	! SM
DEC	.400	.090	.330	.270	.260	.240
<hr/>						
VANADIUM (MG/L )						
			DET'N LIMIT = .001		GUIDELINE = .10 (H)	
MAR	BDL	BDL	BDL	BDL	BDL	BDL
APR	BDL	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	BDL	BDL	BDL	BDL	.	.
AUG	BDL	BDL	BDL	BDL	.	.
SEP	.002	BDL	.001	! IS	BDL	BDL
OCT	BDL	BDL	BDL	BDL	BDL	BDL
NOV	.007	BDL	BDL	BDL	! SM	! SM
DEC	.001	BDL	BDL	BDL	BDL	BDL
<hr/>						
ZINC (MG/L )						
			DET'N LIMIT = .001		GUIDELINE = 5.00 (A3)	
MAR	BDL	BDL	.048	.004	.011	.002
APR	BDL	.001	.040	.001	.012	.001
MAY	BDL	BDL	.028	BDL	.014	.014
JUN	.010	.001	.022	.001	.014	.002
JUL	.001	.001	.025	.001	.	.
AUG	.002	.001	.027	BDL	.	.
SEP	.002	.009	.026	! IS	.011	BDL
OCT	BDL	BDL	.021	BDL	.003	BDL
NOV	.019	BDL	.017	BDL	! SM	! SM
DEC	.002	BDL	.046	BDL	.001	BDL

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM		
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHLOROAROMATICS						
123 TRICHLOROBENZENE (NG/L )		DET'N LIMIT = 5.000		GUIDELINE = 10000. (I)		
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	10.000 <T	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	!SM	.	!QU	.	.
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	!SM	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL
135 TRICHLOROBENZENE (NG/L )						
		DET'N LIMIT = 5.000		GUIDELINE = 10000. (D4)		
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	9.000 <T	.	BDL
MAY	BDL	6.000 <T	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	!SM	.	!QU	.	.
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	!SM	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL
HEXACHLOROETHANE (NG/L )						
		DET'N LIMIT = 1.000		GUIDELINE = 1900. (D4)		
MAR	3.000 <T	5.000 <T	.	5.000 <T	.	5.000 <T
APR	BDL	BDL	.	3.000 <T	.	1.000 <T
MAY	BDL	4.000 <T	.	2.000 <T	.	12.000
JUN	BDL	1.000 <T	.	BDL	.	2.000 <T
JUL	BDL	BDL	.	2.000 <T	.	.
AUG	BDL	!SM	.	!QU	.	.
SEP	BDL	BDL	.	BDL	.	3.000 <T
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	!SM	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL
PENTACHLOROBENZENE (NG/L )						
		DET'N LIMIT = 1.000		GUIDELINE = 74000. (D4)		
MAR	BDL	BDL	.	BDL	.	BDL
APR	1.000 <T	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	!SM	.	!QU	.	.



TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	!SM	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL
-----						
236 TRICHLOROTOLUENE (NG/L )			DET'N LIMIT = 5.000		GUIDELINE = N/A	
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	23.000 <T	.	9.000 <T
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	!SM	.	!QU	.	.
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	!SM	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		
			STANDING	FREE FLOW	STANDING	FREE FLOW	
-----							
PESTICIDES & PCB							
ALPHA BHC (NG/L )	DET'N LIMIT = 1.000		GUIDELINE = 700.		(G)		
MAR	4.000 <T	2.000 <T	.	1.000 <T	.	1.000 <T	
APR	2.000 <T	BDL	.	1.000 <T	.	BDL	
MAY	2.000 <T	2.000 <T	.	1.000 <T	.	1.000 <T	
JUN	1.000 <T	2.000 <T	.	2.000 <T	.	2.000 <T	
JUL	1.000 <T	BDL	.	BDL	.	.	
AUG	BDL	!SM	.	!QU	.	.	
SEP	BDL	BDL	.	1.000 <T	.	1.000 <T	
OCT	1.000 <T	BDL	.	BDL	.	1.000 <T	
NOV	1.000 <T	2.000 <T	.	!SM	.	!NR	
DEC	1.000 <T	2.000 <T	.	1.000 <T	.	1.000 <T	
-----							
LINDANE (NG/L )	DET'N LIMIT = 1.000		GUIDELINE = 4000.0 (A1)				
MAR	BDL	1.000 <T	.	BDL	.	BDL	
APR	2.000 <T	BDL	.	1.000 <T	.	BDL	
MAY	BDL	1.000 <T	.	BDL	.	BDL	
JUN	1.000 <T	1.000 <T	.	2.000 <T	.	1.000 <T	
JUL	BDL	BDL	.	BDL	.	.	
AUG	BDL	!SM	.	!QU	.	.	
SEP	BDL	BDL	.	1.000 <T	.	BDL	
OCT	BDL	BDL	.	BDL	.	BDL	
NOV	BDL	BDL	.	!SM	.	!NR	
DEC	BDL	BDL	.	BDL	.	BDL	

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
-----						
SPECIFIC PESTICIDES						
ATRAZINE (NG/L )			DET'N LIMIT = 50.00		GUIDELINE = 60000. (B3)	
MAR	BDL	90.000 <T	.	BDL	.	90.000 <T
APR	BDL	BDL	.	.	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	90.000 <T
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	BDL	.	BDL	.	.
SEP	BDL	!NR	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL
-----						
BLADEX (NG/L )			DET'N LIMIT = 100.00		GUIDELINE = 10000. (B3)	
MAR	BDL	BDL	.	BDL	.	200.000 <T
APR	BDL	BDL	.	.	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	BDL	.	BDL	.	.
SEP	BDL	!NR	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL
-----						
PROMETONE (NG/L )			DET'N LIMIT = 50.00		GUIDELINE = 52500. (D3)	
MAR	BDL	BDL	.	BDL	.	350.000 <T
APR	BDL	BDL	.	.	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	BDL	.	BDL	.	.
SEP	BDL	!NR	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	!NR
DEC	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
<hr/>						
PHENOL (UG/L )	PHENOLICS		DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)	
MAR	BDL	BDL	.	.	.	.
APR	9.600 CIC	.400 <T	.	.	.	.
MAY	!NR	.200 <T	.	.	.	.
JUN	.400 <T	.200 <T	.	.	.	.
JUL	.200 <T	BDL	.	.	.	.
AUG	BDL	.200 <T	.	.	.	.
SEP	!NR	!NR	.	.	.	.
OCT	BDL	BDL	.	.	.	.
NOV	BDL	BDL	.	.	.	.
DEC	.200 <T	.200 <T	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

WATER TREATMENT PLANT				DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2		
			STANDING	FREE FLOW	STANDING	FREE FLOW	
-----							
VOLATILES							
BENZENE (UG/L )	DET'N LIMIT = 0		GUIDELINE = 5.0		(D1)		
MAR	BDL	BDL	.	BDL	.	BDL	
APR	BDL	BDL	.	BDL	.	BDL	
MAY	BDL	BDL	.	BDL	.	BDL	
JUN	BDL	.100 UIN	.	.150 UIN	.	.100 UIN	
JUL	BDL	BDL	.	BDL	.	.	
AUG	BDL	BDL	.	BDL	.	.	
SEP	BDL	BDL	.	BDL	.	BDL	
OCT	.200 UIN	.200 UIN	.	BDL	.	BDL	
NOV	BDL	.050 <T	.	.200 <T	.	!SM	
DEC	BDL	.100 <T	.	.050 <T	.	.100 <T	
-----							
TOLUENE (UG/L )	DET'N LIMIT = 0		GUIDELINE = 100.0		(G)		
MAR	BDL	BDL	.	BDL	.	BDL	
APR	BDL	.800 <T	.	BDL	.	BDL	
MAY	BDL	.950	.	.500	.	.650	
JUN	BDL	1.600	.	1.100	.	1.000	
JUL	BDL	.900	.	1.100	.	.	
AUG	BDL	.800	.	.900	.	.	
SEP	BDL	BDL	.	.300 UCR	.	BDL	
OCT	.700	.700	.	.300 <T	.	.200 <T	
NOV	BDL	.500	.	.400 <T	.	!SM	
DEC	BDL	.900	.	.600	.	.050 UCS	
-----							
ETHYLBENZENE (UG/L )	DET'N LIMIT = 0		GUIDELINE = 3400.		(D3)		
MAR	BDL	BDL	.	BDL	.	BDL	
APR	BDL	BDL	.	BDL	.	BDL	
MAY	BDL	.150 <T	.	BDL	.	BDL	
JUN	BDL	.350 <T	.	.400 <T	.	.200 <T	
JUL	BDL	.200 <T	.	.300 <T	.	.	
AUG	BDL	.250 <T	.	.200 <T	.	.	
SEP	BDL	BDL	.	.200 <T	.	BDL	
OCT	.100 <T	.100 <T	.	.100 <T	.	.050 <T	
NOV	BDL	.150 <T	.	.100 <T	.	!SM	
DEC	BDL	.150 <T	.	.100 <T	.	BDL	
-----							
P-XYLENE (UG/L )	DET'N LIMIT = 0		GUIDELINE = 620.		(G)		
MAR	BDL	BDL	.	BDL	.	BDL	
APR	BDL	BDL	.	BDL	.	BDL	
MAY	BDL	.000 RMP	.	.000 RMP	.	.000 RMP	
JUN	BDL	.000 RMP	.	.000 RMP	.	.000 RMP	
JUL	BDL	.000 RMP	.	.000 RMP	.	.	
AUG	BDL	.000 RMP	.	.000 RMP	.	.	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1	SITE 2		
				STANDING	FREE FLOW	STANDING
				STANDING	FREE FLOW	STANDING
SEP	BDL	BDL	.	.	.000 RMP	.
OCT	.000 RMP	.000 RMP	.	.	.000 RMP	.
NOV	BDL	.000 RMP	.	.	.000 RMP	! SM
DEC	BDL	.000 RMP	.	.	.000 RMP	BDL
<hr/>						
M-XYLENE (UG/L )		DET'N LIMIT = 0		GUIDELINE = 620. (G)		
MAR	BDL	BDL	.	.	BDL	BDL
APR	BDL	BDL	.	.	BDL	BDL
MAY	BDL	.500 <T	.	.	.400 <T	.500 <T
JUN	BDL	1.200	.	.	.800 <T	.600 <T
JUL	BDL	.500 RMP	.	.	.600 RMP	.
AUG	BDL	.600 <T	.	.	.600 <T	.
SEP	BDL	BDL	.	.	.200 <T	BDL
OCT	.400 <T	.400 <T	.	.	.200 <T	.100 <T
NOV	BDL	.400 <T	.	.	.300 <T	! SM
DEC	BDL	.700 <T	.	.	.400 <T	BDL
<hr/>						
O-XYLENE (UG/L )		DET'N LIMIT = 0		GUIDELINE = 620. (G)		
MAR	BDL	BDL	.	.	BDL	BDL
APR	BDL	BDL	.	.	BDL	BDL
MAY	BDL	.200 <T	.	.	.150 <T	.200 <T
JUN	BDL	.450 <T	.	.	.350 <T	.300 <T
JUL	BDL	BDL	.	.	.200 <T	.
AUG	BDL	.600	.	.	.500 <T	.
SEP	BDL	BDL	.	.	.100 <T	BDL
OCT	.200 <T	.200 <T	.	.	.200 <T	.050 <T
NOV	BDL	.150 <T	.	.	.100 <T	! SM
DEC	BDL	BDL	.	.	BDL	BDL
<hr/>						
1,1 DICHLOROETHYLENE (UG/L )		DET'N LIMIT = 0		GUIDELINE = 7.0 (D1)		
MAR	BDL	BDL	.	.	BDL	BDL
APR	BDL	BDL	.	.	BDL	BDL
MAY	BDL	BDL	.	.	BDL	BDL
JUN	BDL	.000 SPS	.	.	.000 SPS	.000 SPS
JUL	BDL	BDL	.	.	BDL	.
AUG	BDL	BDL	.	.	BDL	.
SEP	BDL	BDL	.	.	BDL	BDL
OCT	.000 SPS	.000 SPS	.	.	.000 SPS	BDL
NOV	BDL	BDL	.	.	BDL	! SM
DEC	BDL	.000 SPS	.	.	.000 SPS	BDL
<hr/>						
DICHLOROMETHANE (UG/L )		DET'N LIMIT = 0		GUIDELINE = 1750. (D3)		
MAR	BDL	BDL	.	.	ICS	ICS

TABLE 5

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	ICS	ICS	.	ICS	.	ICS
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	BDL	.	BDL	.	.
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	ISM
DEC	BDL	BDL	.	BDL	.	2.000 UCS
<hr/>						
CHLOROFORM (UG/L )			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
MAR	BDL	35.000	.	29.000	.	22.000
APR	1.000	42.000	.	40.000	.	28.000
MAY	BDL	28.900	.	28.700	.	24.000
JUN	.500 <T	44.700	.	36.500	.	28.600
JUL	BDL	34.300	.	48.200	.	.
AUG	.500 <T	37.700	.	34.400	.	.
SEP	4.500	48.300	.	42.200	.	26.000
OCT	35.700	44.000	.	37.700	.	26.400
NOV	.200 <T	31.000	.	25.700	.	ISM
DEC	1.400	39.600	.	30.300	.	19.500
<hr/>						
DICHLOROBROMOMETHANE (UG/L )			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
MAR	BDL	15.000	.	10.000	.	9.000
APR	.500 <T	13.000	.	12.000	.	10.000
MAY	BDL	12.250	.	12.000	.	10.900
JUN	BDL	14.700	.	13.800	.	11.800
JUL	BDL	12.600	.	14.800	.	.
AUG	BDL	13.800	.	13.300	.	.
SEP	1.500	15.000	.	12.900	.	9.700
OCT	15.200	15.600	.	13.100	.	10.600
NOV	BDL	13.600	.	11.550	.	ISM
DEC	.600	16.700	.	13.400	.	10.100
<hr/>						
CHLORODIBROMOMETHANE (UG/L )			DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)	
MAR	BDL	6.000	.	3.000	.	3.000
APR	BDL	3.000	.	3.000	.	2.000
MAY	BDL	4.000	.	4.200	.	3.900
JUN	BDL	5.300	.	5.100	.	4.900
JUL	BDL	6.600	.	4.500	.	.
AUG	BDL	5.400	.	4.800	.	.
SEP	.700 <T	6.800	.	4.000	.	3.500
OCT	5.000	4.700	.	3.400	.	3.100
NOV	BDL	4.400	.	4.000	.	ISM

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
DEC	BDL	6.000	.	4.500	.	3.700
<hr/>						
BROMOFORM (UG/L )	DET'N LIMIT = 0		GUIDELINE = 350.0 (A1+)			
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	BDL	.	.
AUG	BDL	BDL	.	BDL	.	.
SEP	BDL	.200 <T	.	BDL	.	BDL
OCT	.200 <T	.200 <T	.	.200 <T	.	.200 <T
NOV	BDL	.200 <T	.	.200 <T	.	! SM
DEC	BDL	BDL	.	BDL	.	BDL
<hr/>						
TOTL TRIHALOMETHANES (UG/L )	DET'N LIMIT = 0		GUIDELINE = 350.0 (A1)			
MAR	BDL	56.000	.	42.000	.	34.000
APR	1.500	58.000	.	55.000	.	40.000
MAY	BDL	45.150	.	44.900	.	38.800
JUN	.500	64.700	.	55.400	.	45.300
JUL	BDL	53.500	.	67.500	.	.
AUG	.500	56.900	.	52.500	.	.
SEP	6.700	70.300	.	59.100	.	39.200
OCT	56.100	64.500	.	54.400	.	40.300
NOV	.200	49.200	.	41.450	.	! SM
DEC	2.000	62.300	.	48.200	.	33.300



TABLE 6

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

## COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN ----	PARAMETER -----	ANALYSED -----	DETECTION LIMIT -----	GUIDELINE -----
CHEMISTRY (LAB)	CYANIDE	38	0.001	.200 (A1) MG/L
METALS	ARSENIC	56	0.001	.050 (A1) MG/L
	BERYLLIUM	56	0.001	.0002 (H) MG/L
	SELENIUM	56	0.001	.010 (A1) MG/L
CHLOROAROMATICS	HEXACHLOROBUTADIENE	38	1.000	450. (D4) NG/L
	1234 T-CHLOROBENZENE	38	1.000	10000. (I) NG/L
	1235 T-CHLOROBENZENE	38	1.000	10000. (I) NG/L
	124 TRICHLOROBENZENE	38	5.000	10000. (I) NG/L
	1245 T-CHLOROBENZENE	38	1.000	38000. (D4) NG/L
	OCTACHLOROSTYRENE	38	1.000	N/A NG/L
	245 TRICHLOROTOLUENE	38	5.000	N/A NG/L
	26A TRICHLOROTOLUENE	38	5.000	N/A NG/L
CHLOROPHENOLS	234 TRICHLOROPHENOL	4	50.	N/A NG/L
	2345 T-CHLOROPHENOL	4	50.	N/A NG/L
	2356 T-CHLOROPHENOL	4	50.	N/A NG/L
	245-TRICHLOROPHENOL	4	50.	2600000(D4) NG/L
	246-TRICHLOROPHENOL	4	50.	10000. (C1) NG/L
	PENTACHLOROPHENOL	4	50.	10000. (C1) NG/L
PAH	PHENANTHRENE	8	0	N/A NG/L
	ANTHRACENE	8	0	N/A NG/L
	FLUORANTHENE	8	0	42000 (D4) NG/L
	PYRENE	8	0	N/A NG/L
	BENZO(A)ANTHRACENE	8	0	N/A NG/L
	CHRYSENE	8	0	N/A NG/L
	DIMETH. BENZ(A)ANTHR	8	0	N/A NG/L
	BENZO(E)PYRENE	8	0	N/A NG/L
	BENZO(J) FLUORANTHEN	8	N/A	N/A NG/L
	BENZO(B) FLUORANTHEN	8	0	N/A NG/L
	PERYLENE	8	0	N/A NG/L
	BENZO(K) FLUORANTHEN	8	N/A	N/A NG/L
	BENZO (A) PYRENE	8	0	10 (B1) NG/L
	BENZO(G,H,I) PERYLEN	8	0	N/A NG/L
	DIBENZO(A,H) ANTHRAC	8	0	N/A NG/L
	INDENO(1,2,3-C,D) PY	8	0	N/A NG/L
	BENZO(B) CHRYSENE	8	0	N/A NG/L
	ANTHANTHRENE	8	N/A	N/A NG/L
	CORONENE	8	0	N/A NG/L
PESTICIDES & PCB	ALDRIN	38	1.000	700.0 (A1) NG/L
	BETA BHC	38	1.000	300. (G) NG/L
	ALPHA CHLORDANE	38	2.000	7000.0 (A1) NG/L
	GAMMA CHLORDANE	38	2.000	7000.0 (A1) NG/L
	DIELDRIN	38	2.000	700.0 (A1) NG/L
	METHOXYCHLOR	38	5.000	100000. (A1) NG/L
	THIODAN I	38	2.000	74000. (D4) NG/L
	THIODAN II	38	4.000	74000. (D4) NG/L
	ENDRIN	38	4.000	200.0 (A1) NG/L

TABLE 6

## DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

## COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE
-----	-----	-----	-----	-----
PESTICIDES & PCB	THIODAN SULPHATE	38	4.000	N/A NG/L
	HEPTACHLOR EPOXIDE	38	1.000	3000.0 (A1) NG/L
	HEPTACHLOR	38	1.000	3000.0 (A1) NG/L
	MIREX	38	5.000	N/A NG/L
	OXYCHLORDANE	38	2.000	N/A NG/L
	OPDDT	38	5.000	30000. (A1) NG/L
	PCB	38	20.000	3000. (A2) NG/L
	PP-DDD	38	5.000	N/A NG/L
	PPDDE	38	1.000	30000. (A1) NG/L
	PPDDT	38	5.000	30000. (A1) NG/L
	ATRATONE	37	50.	N/A NG/L
	ALACHLOR	37	500.	35000. (D2) NG/L
	ETHYLENE DIBROMIDE	38	0	50.0 (G) UG/L
	HCB	38	1.000	10.0 (C1) NG/L
SPECIFIC PESTICIDES	TOXAPHENE	38	N/A	5000. (A1) NG/L
	AMETRYNE	37	50.00	300000. (D3) NG/L
	PROPAZINE	37	50.00	16000. (D2) NG/L
	PROMETRYNE	37	50.00	1000. (B3) NG/L
	SENCOR	37	100.00	80000. (B2) NG/L
	SIMAZINE	37	50.00	10000. (B3) NG/L
	2,4,5-T	4	50.00	35000. (D2) NG/L
	2,4-D	4	100.00	100000. (A1) NG/L
	24DCHLRPHENOXYBUTYRC	4	200.00	18000. (B3) NG/L
	2,4-DP	4	100.00	N/A NG/L
	DICAMBA	4	100.00	87000. (B3) NG/L
	PICHLORAM	4	100.00	2450000. (D3) NG/L
	SILVEX	4	50.00	10000. (A1) NG/L
	DIAZINON	3	20.	14000. (A1) NG/L
	DICHLOROVOS	3	20.	N/A NG/L
	DURSBAN	3	20.	N/A NG/L
	ETHION	3	20.	35000. (G) NG/L
	GUTHION	3	N/A	N/A NG/L
	MALATHION	3	20.	160000. (G) NG/L
	MEVINPHOS	3	20.	N/A NG/L
	METHYL PARATHION	3	50.	7000. (B3) NG/L
	METHYLTRITHION	3	20.	N/A NG/L
	PARATHION	3	20.	35000. (B1) NG/L
	PHORATE	3	20.	35.0 (D2) NG/L
	RELDAN	3	20.	N/A NG/L
	RONNEL	3	20.	N/A NG/L
	AMINOCARB	4	N/A	N/A NG/L
	BENOMYL	4	N/A	N/A NG/L
	BUX	4	2000.	N/A NG/L
	CARBOFURAN	4	2000.	18000. (D3) NG/L
	CIPC	4	2000.	350000. (G) NG/L
	DIALATE	4	2000.	30000. (H) NG/L
	EPTAM	4	2000.	N/A NG/L
	IPC	4	2000.	N/A NG/L
	PROPOXUR	4	2000.	90000. (G) NG/L
	SEVIN	4	200.	70000. (A1) NG/L
	SUTAN	4	2000.	245000. (D3) NG/L

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM PORT DOVER (NANTICOKE) W.S.S. 1987

## COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE	
SPECIFIC PESTICIDES	METOLACHLOR	37	500.	50000. (B3)	NG/L
VOLATILES	T1,2DICHLOROETHYLENE	38	0	350. (D3)	UG/L
	1,1 DICHLOROETHANE	38	0	N/A	UG/L
	111, TRICHLOROETHANE	38	0	200. (D1)	UG/L
	1,2 DICHLOROETHANE	38	0	5.0 (D1)	UG/L
	CARBON TETRACHLORIDE	38	0	5.0 (D1)	UG/L
	1,2 DICHLOROPROPANE	38	0	10.0 (G)	UG/L
	TRICHLOROETHYLENE	38	0	5.0 (D1)	UG/L
	112 TRICHLOROETHANE	38	0	.60 (D4)	UG/L
	T-CHLOROETHYLENE	38	0	10.0 (C2)	UG/L
	1122 T-CHLOROETHANE	38	0	0.17 (D4)	UG/L
	CHLOROBENZENE	38	0	1510. (D3)	UG/L
	1,4 DICHLOROBENZENE	38	0	75.0 (D1)	UG/L
	1,3 DICHLOROBENZENE	38	0	130. (G)	UG/L
	1,2 DICHLOROBENZENE	38	0	130. (G)	UG/L
	TRIFLUOROCHLOROTOLUE	38	0	N/A	UG/L

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN ----	PARAMETER -----	ANALYSED -----	DETECTION LIMIT -----	GUIDELINE -----
CHEMISTRY (LAB)	CYANIDE	16	0.001	.200 (A1) MG/L
METALS	ARSENIC	16	0.001	.050 (A1) MG/L
	SELENIUM	16	0.001	.010 (A1) MG/L
CHLOROAROMATICS	HEXACHLOROBUTADIENE	16	1.000	450. (D4) NG/L
	123 TRICHLOROBENZENE	16	5.000	10000. (I) NG/L
	1234 T-CHLOROBENZENE	16	1.000	10000. (I) NG/L
	1235 T-CHLOROBENZENE	16	1.000	10000. (I) NG/L
	124 TRICHLOROBENZENE	16	5.000	10000. (I) NG/L
	1245 T-CHLOROBENZENE	16	1.000	38000. (D4) NG/L
	135 TRICHLOROBENZENE	16	5.000	10000. (D4) NG/L
	OCTACHLOROSTYRENE	16	1.000	N/A NG/L
	PENTACHLOROBENZENE	16	1.000	74000. (D4) NG/L
	236 TRICHLOROTOLUENE	16	5.000	N/A NG/L
	245 TRICHLOROTOLUENE	16	5.000	N/A NG/L
	26A TRICHLOROTOLUENE	16	5.000	N/A NG/L
CHLOROPHENOLS	234 TRICHLOROPHENOL	3	50.	N/A NG/L
	2345 T-CHLOROPHENOL	3	50.	N/A NG/L
	2356 T-CHLOROPHENOL	3	50.	N/A NG/L
	245-TRICHLOROPHENOL	3	50.	2600000(D4) NG/L
	246-TRICHLOROPHENOL	3	50.	10000. (C1) NG/L
	PENTACHLOROPHENOL	3	50.	10000. (C1) NG/L
PAH	PHENANTHRENE	8	0	N/A NG/L
	ANTHRACENE	8	0	N/A NG/L
	FLUORANTHENE	8	0	42000 (D4) NG/L
	PYRENE	8	0	N/A NG/L
	BENZO(A)ANTHRACENE	8	0	N/A NG/L
	CHRYSENE	8	0	N/A NG/L
	DIMETH. BENZ(A)ANTHR	8	0	N/A NG/L
	BENZO(E)PYRENE	8	0	N/A NG/L
	BENZO(J) FLUORANTHEN	8	N/A	N/A NG/L
	BENZO(B) FLUORANTHEN	8	0	N/A NG/L
	PERYLENE	8	0	N/A NG/L
	BENZO(K) FLUORANTHEN	8	N/A	N/A NG/L
	BENZO (A) PYRENE	8	0	10 (B1) NG/L
	BENZO(G,H,I) PERYLEN	8	0	N/A NG/L
	DIBENZO(A,H) ANTHRAC	8	0	N/A NG/L
	INDENO(1,2,3-C,D) PY	8	0	N/A NG/L
	BENZO(B) CHRYSENE	8	0	N/A NG/L
	ANTHANTHRENE	8	N/A	N/A NG/L
	CORONENE	8	0	N/A NG/L
PESTICIDES & PCB	ALDRIN	16	1.000	700.0 (A1) NG/L
	LINDANE	16	1.000	4000.0 (A1) NG/L
	ALPHA CHLORDANE	16	2.000	7000.0 (A1) NG/L
	GAMMA CHLORDANE	16	2.000	7000.0 (A1) NG/L
	DIELDRIN	16	2.000	700.0 (A1) NG/L
	METHOXYCHLOR	16	5.000	100000. (A1) NG/L

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE
-----	-----	-----	-----	-----
PESTICIDES & PCB	THIODAN I	16	2.000	74000. (D4) NG/L
	THIODAN II	16	4.000	74000. (D4) NG/L
	ENDRIN	16	4.000	200.0 (A1) NG/L
	THIODAN SULPHATE	16	4.000	N/A NG/L
	HEPTACHLOR EPOXIDE	16	1.000	3000.0 (A1) NG/L
	HEPTACHLOR	16	1.000	3000.0 (A1) NG/L
	MIREX	16	5.000	N/A NG/L
	OXYCHLORDANE	16	2.000	N/A NG/L
	OPDDT	16	5.000	30000. (A1) NG/L
	PCB	16	20.000	3000. (A2) NG/L
	PP-DDD	16	5.000	N/A NG/L
	PPDDT	16	5.000	30000. (A1) NG/L
	ATRATONE	16	50.	N/A NG/L
	ALACHLOR	16	500.	35000. (D2) NG/L
	ETHYLENE DIBROMIDE	16	0	50.0 (G) UG/L
	HCB	16	1.000	10.0 (C1) NG/L
SPECIFIC PESTICIDES	TOXAPHENE	16	N/A	5000. (A1) NG/L
	AMETRYNE	16	50.00	300000. (D3) NG/L
	ATRAZINE	16	50.00	60000. (B3) NG/L
	BLADEx	16	100.00	10000. (B3) NG/L
	PROMETONE	16	50.00	52500. (D3) NG/L
	PROPazine	16	50.00	16000. (D2) NG/L
	PROMETRYNE	16	50.00	1000. (B3) NG/L
	SENCOR	16	100.00	80000. (B2) NG/L
	SIMAZINE	16	50.00	10000. (B3) NG/L
	2,4,5-T	3	50.00	35000. (D2) NG/L
	2,4-D	3	100.00	100000. (A1) NG/L
	24DCHLRPHENOXYBUTYRC	3	200.00	18000. (B3) NG/L
	2,4-DP	3	100.00	N/A NG/L
	DICAMBA	3	100.00	87000. (B3) NG/L
	PICHLORAM	3	100.00	2450000 (D3) NG/L
	SILVEX	3	50.00	10000. (A1) NG/L
	DIAZINON	3	20.	14000. (A1) NG/L
	DICHLOROVOS	3	20.	N/A NG/L
	DURSBAN	3	20.	N/A NG/L
	ETHION	3	20.	35000. (G) NG/L
	GUTHION	3	N/A	N/A NG/L
	MALATHION	3	20.	160000. (G) NG/L
	MEVINPHOS	3	20.	N/A NG/L
	METHYL PARATHION	3	50.	7000. (B3) NG/L
	METHYLTRITHION	3	20.	N/A NG/L
	PARATHION	3	20.	35000. (B1) NG/L
	PHORATE	3	20.	35.0 (D2) NG/L
	RELDAN	3	20.	N/A NG/L
	RONNEL	3	20.	N/A NG/L
	AMINOCARB	3	N/A	N/A NG/L
	BENOMYL	3	N/A	N/A NG/L
	BUX	3	2000.	N/A NG/L
	CARBOFURAN	3	2000.	18000. (D3) NG/L
	CIPC	3	2000.	350000. (G) NG/L
	DIALATE	3	2000.	30000. (H) NG/L

TABLE 6

DRINKING WATER SURVEILLANCE PROGRAM DOANS HOLLOW INFILT. POND PORT DOVER 1987

## COUNT OF PARAMETERS NOT FOUND ABOVE THE DETECTION LIMIT

SCAN	PARAMETER	ANALYSED	DETECTION LIMIT	GUIDELINE	
----	-----	-----	-----	-----	
SPECIFIC PESTICIDES	EPTAM	3	2000.	N/A	NG/L
	IPC	3	2000.	N/A	NG/L
	PROPOXUR	3	2000.	90000. (G)	NG/L
	SEVIN	3	200.	70000. (A1)	NG/L
	SUTAN	3	2000.	245000. (D3)	NG/L
	METOLACHLOR	16	500.	50000. (B3)	NG/L
VOLATILES	BENZENE	16	0	5.0 (D1)	UG/L
	P-XYLENE	16	0	620. (G)	UG/L
	M-XYLENE	16	0	620. (G)	UG/L
	O-XYLENE	16	0	620. (G)	UG/L
	DICHLOROMETHANE	16	0	1750. (D3)	UG/L
	T1,2DICHLOROETHYLENE	16	0	350. (D3)	UG/L
	1,1 DICHLOROETHANE	16	0	N/A	UG/L
	1,2 DICHLOROETHANE	16	0	5.0 (D1)	UG/L
	CARBON TETRACHLORIDE	16	0	5.0 (D1)	UG/L
	1,2 DICHLOROPROPANE	16	0	10.0 (G)	UG/L
	TRICHLOROETHYLENE	16	0	5.0 (D1)	UG/L
	112 TRICHLOROETHANE	16	0	.60 (D4)	UG/L
	T-CHLOROETHYLENE	16	0	10.0 (C2)	UG/L
	BROMOFORM	16	0	350.0 (A1+)	UG/L
	1122 T-CHLOROETHANE	16	0	0.17 (D4)	UG/L
	CHLOROBENZENE	16	0	1510. (D3)	UG/L
	1,4 DICHLOROBENZENE	16	0	75.0 (D1)	UG/L
	1,3 DICHLOROBENZENE	16	0	130. (G)	UG/L
	1,2 DICHLOROBENZENE	16	0	130. (G)	UG/L
	TRIFLUOROCHLOROTOLUE	16	0	N/A	UG/L

## Appendix A

### DRINKING WATER SURVEILLANCE PROGRAM

The Drinking Water Surveillance Program (DWSP) for Ontario monitors drinking water quality at municipal water supply systems. The DWSP Database Management System provides a computerized drinking water quality information system for the supplies monitored. The objectives of the program are to provide:

- immediate, reliable, current information on drinking water quality,
- a flagging mechanism for 'Objective' exceedence,
- a definition of contaminant levels and trends,
- a comprehensive background for remedial action,
- a framework for assessment of new contaminants,
- and an indication of treatment efficiency of plant processes.

#### Program

The DWSP officially began in April 1986 and is designed to eventually include all municipal water supplies in Ontario; currently 44 plants are being monitored. Water supply locations have been prioritized for surveillance, based primarily on criteria such as population density, probability of contamination and geographical location.

An ongoing assessment of future monitoring requirements at each location will be made. Monitoring will continue at the initial locations at an appropriate level and further locations will be phased into the program as resources permit. It is estimated that after 4 years of operation, the program will be monitoring 90 locations.

A major goal of the program is to collect valid water quality data, in context with plant operational characteristics at the time of sampling. As soon as sufficient data have been accumulated and analysed, both the frequency of sampling and the range of parameters may be adjusted accordingly.

Assessments are carried out at all locations prior to initial sampling in order to acquire complete plant process and distribution system details, and to designate ( and retrofit if necessary ) all sampling systems and locations. This ensures that the sampled water is a reflection of the water itself.

Samples are taken of the raw ( ambient water ) and the treated water at the treatment plant, and of consumer's tap water in the distribution system. In order to determine possible effects of distribution on water quality, both standing and free flow water in old and new sections of the distribution system are sampled.

Sampling is carried out by operational personnel who have been trained in the applicable procedures.



Comprehensive standardized procedures and Field Test kits are supplied to sampling personnel. This ensures that samples are taken and handled according to standard protocols and that field testing will supply reliable data. All field and laboratory analyses are carried out using "approved documented procedures". All laboratory analyses are carried out by the MOE Laboratory Services Branch.

#### Data Reporting Mechanism

When the analytical results are transferred from the MOE laboratory into the DWSP system, printouts of the completed analyses are sent to the MOE District Officer, the appropriate operational staff and are also retained by the DWSP co-ordinator.

#### DWSP INPUTS AND OUTPUTS

The DWSP INPUTS and OUTPUTS are illustrated in Fig. 1.

#### PROGRAM INPUTS

##### PLANT AND DISTRIBUTION SYSTEM DESCRIPTION

The system description includes plant specific non-analytical information acquired through a questionnaire and initial plant visit. During the initial assessment of the plant and distribution system the questionnaire content is verified and

missing information added. It is intended that all data be kept current with scheduled annual updates.

The PLANT and DISTRIBUTION SYSTEM DESCRIPTION consists of the following seven components.

1. Process component inventory

All physical and chemical processes that the water is subjected to, from the intake pipe to the consumers' tap (where possible), are documented. These include: process type, general description of physical structures, material types, sizes, and retention time for each process within the plant. The processes may be as simple as transmission or as complex as carbon adsorption.

2. Treatment chemicals

Chemicals used in the treatment processes, their function, application point, supplier and brand-name are recorded. The chemical dosages applied on the day of sampling are recorded in DWSP.

3. Process control measurements

Documentation of in-plant monitoring of process parameters (turbidity, chlorine residuals, pH, aluminum residuals) including methods used, monitoring locations and frequency is contained in this section. In-plant monitoring results are generally not retained in DWSP but are retained by the Water Treatment Plant.

#### 4. Design flow and retention time

The hydraulic capacity, designed and actual, is noted here. Retention time (the time that a block of water is retained in the plant) is also noted. The maximum, minimum and average flow as well as a record of the flow rate on the day of sampling are recorded in DWSP.

#### 5. Distribution system description

This area includes the storage and transmission characteristics of the distribution system after the water leaves the plant.

#### 6. Sampling system

Each plant is assessed for its adequacy in terms of sampling of bacteriological, organic and inorganic parameters. The prime considerations in the assessment and design of the sampling system are:

- i/ the sample is an accurate representation of the actual water condition, eg. raw water has had no chemical treatment;
- ii/ the water being sampled is not being modified by the sampling system;
- iii/ the sample tap must be in a clean area of the plant, preferably a lab area;
- iv/ the sample lines must be organically inert (no plastic, ideally stainless steel).

It is imperative that the sampled water be a reflection not of the sampling system but of the water itself.

The sampling system documentation includes: origin of the water; date sampling was initiated; size, length and material type (intake, discharge and tap), pump characteristics (model, type, capacity) and flow rate.

## 7. People

This section contains the names, addresses and phone numbers of current plant management and operational staff, distribution system management and operational staff, Medical Officer of Health and appropriate Ministry of Environment personnel associated with the plant.

## FIELD DATA

The second major input to DWSP is field data.

Field data is collected at the plant and from the distribution system sites on the day of sampling. The field data consists of general operating conditions and the results of testing for field parameters. General operating conditions include chemicals used, dosages, flow and retention time on the day of sampling as well as monthly maximum, minimum and average flows. Field parameters include turbidity, chlorine residuals (free, combined and total), temperature and pH. These parameters are analysed according to standardized DWSP protocols to allow for interplant comparison.

## LABORATORY ANALYTICAL DATA

The third major input to DWSP is Laboratory Analytical Data.

Samples gathered from the raw, treated and distribution sampling sites are analyzed for approximately 160 parameters at a frequency of two to twelve times per year. Sixty-five percent of the parameters are organic. The parameters measured may have health or aesthetic implications when present in drinking water. Many of the parameters may be used in the treatment process or may be treatment by-products. Due to the nature of certain analytical instruments parameters may be measured for in a "scan" producing some results for parameters that are not on the DWSP priority list but which may be of interest. The majority of the parameters are measured on a routine basis however, those that are technically more difficult and/or costly to analyse for are done less frequently. These include Specific Pesticides and Chlorophenols.

Although the parameter list is extensive, additional parameters with the potential to cause health or aesthetic related problems may be added provided reliable analytical and sampling methods exist.

All laboratory generated data is derived from standardized, documented analytical protocols. The analytical method is an integral part of the data and as methods change notation will be made and intercomparison data documented.

## PARAMETER REFERENCE INFORMATION

The fourth major input to DWSP is Parameter Reference Information

This is a catalogue of information for each substance analysed on DWSP. It includes parameter name and aliases, physical and chemical properties, basic toxicology, world-wide health limits, treatment methods and uses. The Parameter Reference Information is computerized and can be accessed through the Query function of the DWSP database.

An example is shown in fig. 2.

A written copy (hard version) of the Parameter Reference Information will be available in the near future and is a new and sophisticated enhancement to the DWSP.

## PROGRAM OUTPUTS

There are four major program outputs, Query, Action Alert, Report Generation and the Annual Report.

### QUERY

All DWSP information is easily accessed through the Query function, therefore anything from addresses of plant personnel to complete water quality information for a plant's water supply is instantly available. The DWSP computer system makes relatively complex inquiries manageable. A personal password allowing access into the DWSP query mode in all MOE offices is being developed by the DWSP group.

### ACTION ALERTS

Drinking Water quality in Ontario is evaluated against provincial objectives as outlined in the publication, Ontario Drinking Water Objectives (ISBN 0-7729-2725-1 revised 1983). This publication contains health-related Maximum Acceptable Concentrations for thirty substances. Should the reported level of a substance in treated water exceed the Ontario Drinking Water Objective an "Action Alert" requiring resampling and confirmation is issued. This assures that operational staff, health authorities and the public are notified as soon as possible of confirmation of an exceedance and remedial action taken. This report supplies a history of the occurrence of past exceedences at the plant plus a historical summary on the parameter of concern.

In the absence of Ontario Drinking Water Objectives, other agency guidelines which are documented in the Parameter Reference Information may be used. If these guidelines are exceeded the results are flagged and evaluated by DWSP personnel. An "Action Alert" will be issued if warranted.

### REPORT GENERATION

Custom reports can be generated from DWSP to meet the needs of the regions and to respond to public requests.

### ANNUAL REPORTS

It is the practice of DWSP to produce an annual report containing analytical data along with companion plant information.

FIG. 1

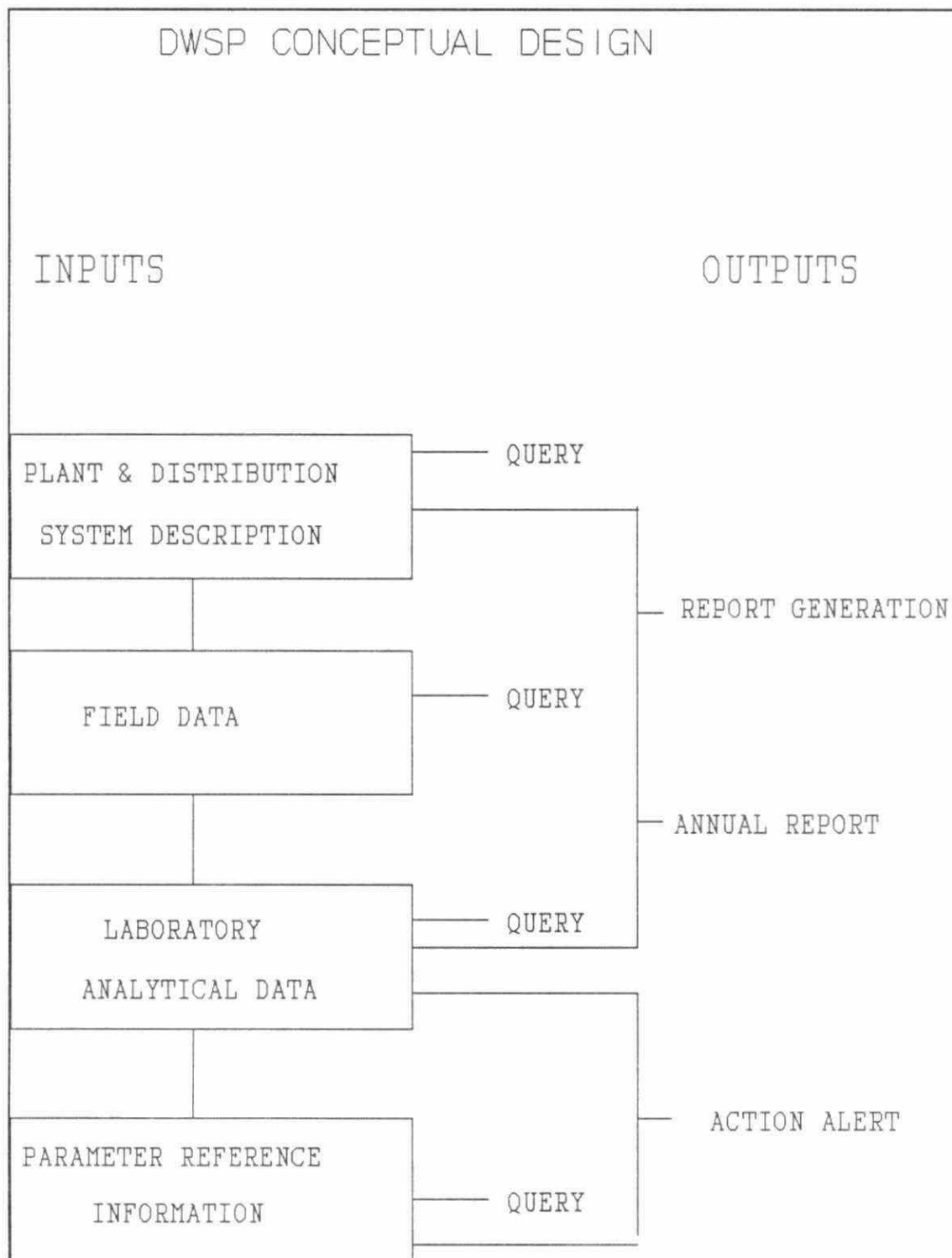




FIG.2

## MOE - DRINKING WATER ASSESSMENT PROGRAM (DWSP)

(B2001P)  
REFERENCE  
BENZENE

## PARAMETER

SOURCE	FROM	TO	METHOD	TARG	UNIT	NOTE
EPA	C 86/04		NOMETH	.00	063000 UG/L	RMCL
EPAA	C 80/11		NOMETH	6.60	063000 UG/L	
FERC	C 84/05		NOMETH	1.00	063000 UG/L	
WHO	C 84/01		NOMETH	10.00	064000 UG/L	

## DESCRIPTION: NAME: BENZENE

CAS#: 71432

MOLECULAR FORMULAE:  $C_6H_6$ 

DETECTION LIMIT: (FOR METHOD POCODO) 0.05 UG/L

SYNONYMS: BENZOLE, COAL NAPHTHA, CARBON OIL (27),  
CYCLOHEXATRIENE (41)CHARACTERISTICS: COLOURLESS TO LIGHT YELLOW, MOBILE,  
NON-POLAR LIQUID, OF HIGHLY REFRACTIVE NATURE,  
AROMATIC, VAPOURS BURN WITH SMOKING FLAME (30)

## PROPERTIES:

SOLUBILITY IN WATER: 1780-1800 MG/L AT 25 DEG C (41)

THRESHOLD ODOUR: NO DATA

THRESHOLD TASTE: 0.5 MG/L IN WATER (39)

ENVIRONMENTAL FATE: MAY BIOACCUMULATE IN LIVING  
ORGANISMS, APPEARS TO BIOACCUMULATE IN ANIMAL  
TISSUES THAT EXHIBIT HIGH LIPID CONTENT OR ARE  
MAJOR METABOLIC SITES (LIVER, BRAIN), SMALL  
QUANTITIES EVAPORATE FROM SOIL OR DEGRADE QUICKLY  
SOURCES: PETROLEUM REFINING, SOLVENT RECOVERY, COAL  
TAR DISTILLATION, FOOD PROCESSING, TANNING.USES: PREPARATION OF ETHYL BENZENE USED AS A STYRENE  
MONOMER, DETERGENTS, NYLON, AS INTERMEDIATE IN  
PESTICIDE PRODUCTION, SOLVENT IN RUBBER INDUSTRY,  
DEGREASING AND CLEANSING AGENT, GASOLINE.TOXICITY: RATING 4 (VERY TOXIC); ACUTE - IRRITATES  
MUCOUS MEMBRANES, SYMPTOMS INCLUDE RESTLESSNESS,  
CONVULSIONS, DEPRESSION, RESPIRATORY FAILURE;  
CHRONIC - ANEMIA AND LEUKEMIA (45).

CARINOGENICITY: HUMAN CARCINOGEN AND MUTAGEN

REMOVAL: GAC ADSORPTION, PRECIPITATION WITH ALUM  
FOLLOWED BY SEDIMENTATION, COAGULATION AND  
FLOCCULATION, SOLVENT EXTRACTION, OXIDATION (41).

MOLECULAR WEIGHT: 78.12 GRAMS

MELTING POINT: 5.5 DEGREES C (27)

BOILING POINT: 80.1 DEGREES C (27)

SPECIFIC GRAVITY: 0.879 AT 20 DEGREES C (27)

VAPOUR PRESSURE: 100 MM AT 26.1 DEGREES C

HENRY'S LAW CONSTANT: 0.00555 ATM  $M_2$ /MOLE

LOG OCT./WATER PAR.COEFF: K=1.0 1/N=1.6 R=.97 PH=5.3

## Appendix B

### DWSP SAMPLING GUIDELINE

#### i) RAW and TREATED at PLANT

General Chemistry	<ul style="list-style-type: none"><li>-500 mL clear plastic bottle</li><li>-rinse bottle with sample three times and discard water</li><li>-fill to line</li></ul>
Bacti	<ul style="list-style-type: none"><li>-250 mL clear glass bottle with white seal on cap</li><li>-do <u>not</u> rinse bottle; preservative has been added</li><li>-avoid touching bottle neck or inside of cap</li><li>-fill to top of red label as marked</li></ul>
Metals	<ul style="list-style-type: none"><li>-500 mL clear plastic bottle with white lid</li><li>-rinse bottle and cap three times, discard</li><li>-fill to line</li><li>-add 10 drops nitric acid (<b>Caution:</b> <math>\text{HNO}_3</math> is corrosive)</li></ul>
Volatiles (OPOPUP)	<ul style="list-style-type: none"><li>-250 mL clear glass bottle</li><li>-do <u>not</u> rinse bottle</li><li>-tilt bottle when filling</li><li>-fill bottle completely; there should be no air bubbles.</li></ul>
Organic (OWOC), (OWTRI), (OAPAHX)	<ul style="list-style-type: none"><li>-1 liter brown glass bottle per scan</li><li>-do <u>not</u> rinse bottle</li><li>-fill to approx. 1" from top</li><li>-when 'special pesticides' are requested three extra bottles per sample must be submitted</li></ul>
Cyanide	<ul style="list-style-type: none"><li>-500 mL clear plastic bottle</li><li>-do <u>not</u> rinse bottle</li><li>-fill to approx. 1" from top</li><li>-add 10 drops sodium hydroxide (<b>Caution:</b> NaOH is corrosive)</li></ul>

Mercury

- 250 mL clear glass bottle
- rinse bottle and cap three times, discard then fill to top of label
- add 20 drops each nitric acid and potassium dichromate
- (**Caution:**  $\text{HNO}_3$  and  $\text{KCrO}_7$  corrosive)

Phenols

- 250 mL clear glass bottle
- do not rinse bottle
- fill to top of label as marked

Steps

1. Let cold water tap run for several minutes.
2. Record time in submission sheet.
3. Record teperature on submission sheet.
4. Fill up all bottles as per instructions.
5. Record chlorine residuals (free, combined and total for treated water only), turbidity and pH on submission sheet.

ii) Distribution Samples (standing water)

General Chemistry	-500 mL clear plastic bottle -rinse bottle with sample three times and discard -fill to line
Metals	-500 mL clear plastic bottle with white lid -rinse bottle and cap three times, discard -fill to line -add 10 drops nitric acid ( <b>Caution:</b> $\text{HNO}_3$ is corrosive)

Steps:

1. Record time on submission sheet.
2. Place bucket under tap and open cold water.
3. Fill to predetermined volume.
4. After mixing the water, record the temperature on the submission sheet.
5. Fill general chemistry and metals bottles.
6. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

iii) Distribution Samples (free flow)

General Chemistry	<ul style="list-style-type: none"><li>-500 mL clear plastic bottle</li><li>-rinse bottle with sample three times and discard water</li><li>-fill to line</li></ul>
Bacti	<ul style="list-style-type: none"><li>-250 mL clear glass bottle with white seal on cap</li><li>-do <u>not</u> rinse bottle; preservative has been added</li><li>-avoid touching bottle neck or inside of cap</li><li>-fill to top of red label as marked</li></ul>
Metals	<ul style="list-style-type: none"><li>-500 mL clear plastic bottle with white lid</li><li>-rinse bottle and cap three times, discard</li><li>-fill to line</li><li>-add 10 drops nitric acid (<b>Caution:</b> <math>\text{HNO}_3</math> is corrosive)</li></ul>
Volatiles (OPOPUP)	<ul style="list-style-type: none"><li>-250 mL clear glass bottle</li><li>-do <u>not</u> rinse bottle; preservative has been added</li><li>-tilt bottle when filling</li><li>-fill bottle completely; there should be no air bubbles</li></ul>
Organic (OWOC), (OWTRI)	<ul style="list-style-type: none"><li>-1 liter brown glass bottle per scan</li><li>-do <u>not</u> rinse bottle: preservative has been added</li><li>-fill to approx. 1" from top</li></ul>
Cyanide	<ul style="list-style-type: none"><li>-500 mL clear plastic bottle</li><li>-do <u>not</u> rinse bottle: preservative has been added</li><li>-fill to approx. 1" from top</li><li>-add 10 drops sodium hydroxide (<b>Caution:</b> <math>\text{NaOH}</math> is corrosive)</li></ul>
Mercury	<ul style="list-style-type: none"><li>-250 mL clear glass bottle</li><li>-rinse bottle and cap three times, discard then fill to top of label</li><li>-add 20 drops each nitric acid and potassium dichromate (<b>Caution:</b> <math>\text{HNO}_3</math> and <math>\text{KCrO}_7</math> corrosive)</li></ul>

Steps:

1. Record time on submission sheet.
2. Let cold water flow for ten minutes.
3. Record temperature on submission sheet.
4. Fill all bottles as per instructions.
5. Record chlorine residuals (free, combined and total), turbidity and pH on submission sheet.

TD/434/P674/1988  
Ontario. Ministry of the E  
Port Dover/Doan's Hollow  
Water Treatment Plant.  
AVBE c. 1 ba Water